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THE BRITISH PHARMACOPŒIA 1932*

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The 6th British Pharmacopœia is, as noted in last week's *Veterinary Record*, now to hand. In the preface it is pointed out that the Medical Act of 1858 enacts that the General Council shall cause to be published under their direction a Book containing a list of medicines and compounds, and the manner of preparing them together with the true weights and measures by which they are to be prepared and mixed, and containing such other matter and things relating thereto as the General Council shall think fit, to be called "The British Pharmacopœia"; and the Council shall cause to be altered, amended, and republished, such Pharmacopœia as often as they shall deem it necessary.

The first Pharmacopœia was published in 1864, and it reduced to a conformity the respective Pharmacopœias of London, Edinburgh and Dublin.

Subsequent ones were issued in 1867, 1885, 1898, 1914.

In June, 1926, the Pharmacopœia Committee of the General Medical Council held a conference to which delegates from the Medical, Pharmaceutical and Scientific Societies likely to be interested were invited, to discuss the proposed revision of the B.P. 1914, and as the result the Pharmacopœia Commission, composed as follows, was set up:—

A Chairman and three persons holding medical qualifications, *viz.*: (*a*) one having a special knowledge of clinical medicine, (*b*) one having a special knowledge of Pharmacology and Therapeutics, (*c*) one having a special knowledge of Therapeutic substances; and three persons holding pharmaceutical qualifications, *viz.*: (*d*) one with a special knowledge of Pharmacognosy, (*e*) one with a special knowledge of General Pharmacy, and (*f*) one with a special knowledge of Pharmaceutical Chemistry and Analysis.

The following were selected: Chairman, A. P. Beddard; (*a*) F. R. Fraser; (*b*) J. A. Gunn; (*c*) J. H. Burn; (*d*) H. G. Greenish; (*e*) R. R. Bennett; and (*f*) T. Tickle.

In selecting the drugs to be included in the Pharmacopœia, the Commission has been guided by a desire to include only those substances which are of sufficient medicinal value to justify the continuance of their use by prescribers. It is stated that the fact of a drug being frequently prescribed is not considered sufficient justification for its inclusion, and thus a number of agents which were included in the 1914 Pharmacopœia have been omitted on the grounds of insufficient medicinal value.

The group of hypodermic injections has been omitted, on the ground that it is preferable that the actual dose of the active material shall be prescribed, rather than the dose of an official hypodermic injection. This decision is undoubtedly a wise one; the strengths of the official injections of the more important alkaloids varied from 1-5 per cent., and the problem of calculating a dose in grains of, let us say, a 2·5 per cent. solution, to be administered by means of a hypodermic syringe graduated in cubic centimetres, is one that all prescribers might not care to tackle.

The infusions of the last Pharmacopœia have been renamed Fresh Infusions, and Concentrated Infusions have been introduced, which, after dilution, resemble the fresh infusions.

The Wines have been entirely omitted in conformity with the articles of the International Agreement, which require that no potent drug shall be prepared in the form of a medicinal wine. Similarly, as the result of the article which requires that simple solutions of chemical substances shall not be named tinctures, the two tinctures of iodine of the 1914 Pharmacopœia have been renamed Strong Solution of Iodine and Weak Solution of Iodine respectively.

Ointments for the eye have been introduced under the name "Oculenta" to facilitate the prescribing of ointments for use in the eye, without specifying the proportion of the drug to be contained in them.

These include:—

Oculentum Atropinæ,
" Atropinæ *cum* Hydrargyri Oxido,
" Hydrargyri Oxido,
" Cocainæ,
" Physostigminæ, etc.

Industrial methylated spirit is now included, and its use, under definite conditions, is permitted for the preparation of certain specified liquids intended for external use, for the preparation of certain medicines for internal use, if the material is so treated as to eliminate methylated spirit from the final product.

This permission to use denatured spirit in the preparation of pharmaceutical agents which

* "The British Pharmacopœia, 1932." Published for the General Medical Council, by Constable & Co., Ltd., London, September, 1932. Price 21s. net.

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hitherto have been prepared from taxed ethyl alcohol, will, we hope, bring about a reduction in their cost.

Finally, agents which can be assayed only by biological means, but have become established in medical practice, are included in the Pharmacopœia. These include: Antitoxins, Sera, Tuberculin, organic arsenical compounds, Pituitary Extract, Insulin.

ARTICLES AND PREPARATIONS INCLUDED IN THE B.P. 1932, WHICH WERE NOT INCLUDED IN THE B.P. 1914

Under this heading are found 128 names, and the following is a list of the more important ones from the viewpoint of the veterinary practitioner:—

Acriflavina
Agar
Amylocainæ Hydrochloridum
Antitoxinum Tetanicum
„ Welchicum
Barbitonum Solubile
Barii Sulphas
Belladonna Pulverata
Carbonei Tetrachloridum
Cataplasma Kaolini
Chloramina
Chlorbutol
Digitalis Pulverata
Ephedrinæ Hydrochloridum
Ergota Preparata
Extractum Hepatis Liquidum
Extractum Hepatis Siccum
Extractum Hyoscyami Liquidum
Extractum Malti
Extractum Malti *c* Oleo Morrhuæ
Extractum Pituitarii Liquidum
Fluoresceinum Solubile
Injectio Sodii Chloridi et Acaciæ
Liquor Ammonii Acetatis Fortis
Liquor Ergosterolis Irradiated
Liquor Sodæ Chlorinatæ Chirurgicalis
Liquor Sodii Chloridi Physiologicus
Nux Vomica Pulverata
Oleum Chenopodii
Pasta Zinci Oxidi Composita
Phenobarbitonum Solubile
Physostigminæ Salicylas
Procainæ Hydrochloridum
Syrupus Ferri Phosphatis Compositus
Unguentum Acidi Tannici
Urea.

ARTICLES AND PREPARATIONS INCLUDED IN THE B.P. 1914, BUT NOT INCLUDED IN THE B.P. 1932

This list is a formidable one, and comprises 357 names. Included in it are the following:—

Acetanilidum
Acidum Hydrochloricum Dilutum
Acidum Nitricum Dilutum
Acidum Nitro-Hydrochloricum Dilutum
Acidum Sulphuricum Aromaticum
Aconitina
Ammoniacum
Ammonii Bromidum
Anisi Fructos
Antimonii Oxidum
Aqua Rosæ
Benzaminæ Lactas
Benzenum
Bismuthi Subnitras
Caffeinæ Citras
Cannabis Indica
Carbo Ligni
Carbon Disulphidum
Catechu Nigrum
Collodium
Decoctum Hæmatoxyli
Extractum Cannabis Indicæ
Extractum Opii Liquidum
Galla
Glycerinum Pepsini
Hæmatoxyli Lignum
Hydrargyri Oxidum Rubrum
Linimentum Ammonii
Linimentum Calcis
Linimentum Chloroformi
Linimentum Crotonis
Linimentum Opii
Linimentum Potassii Iodidi *c* Sapone
Liquor Arsenici Hydrochloricus
Liquor Bismuthi et Ammonii Citras
Liquor Calcis Chlorinatæ
Liquor Calcis Saccharatus
Liquor Ferri Perchloridi Fortis
Liquor Morphinæ Acetatis
Liquor Zinci Chloridi
Lotio Hydrargyri Flava
Mistura Cretæ
Mistura Olei Ricini
Oleum Crotonis
Oleum Gaultheriæ
Oleum Juniperi
Phosphorus
Physostigminæ Sulphas
Pilula Quininæ Sulphatis
Plumbi Iodidum
Pulvis Kino Compositus
Pulvis Opii Compositus
Salol
Syrupus Chloral
Syrupus Codeinæ Phosphatis
Syrupus Ferri Phosphatis
Tinctura Aconiti
Tinctura Buchu
Tinctura Cannabis Indicæ
Tinctura Cantharidinæ
Tinctura Chloroformi et Morphinæ Composita
Tinctura Ferri Perchloridi
Tinctura Opii Ammoniata
Unguentum Belladonnæ
Unguentum Cocainæ
Unguentum Creosoti
Unguentum Gallæ
Unguentum Hydrargyri Iodidi Rubrum.
Unguentum Hydrargyri Oxidi Flavi.
Unguentum Iodi
Unguentum Iodoformi
Unguentum Resinæ
Zinci carbonas

PREPARATIONS OF THE B.P. 1932, THE NAMES OF WHICH DIFFER FROM THOSE OF THE CORRESPONDING PREPARATIONS OF THE B.P. 1914

The more important included in this list are:—

OLD NAME.	*NEW NAME.*
Acidum Arseniosum	Arseni Trioxidum
Acidum Carbolicum	Phenol
Acidum Picricum	Trinitrophenol
Æther Purificatus	Æther anæstheticus
Arsenii Iodidum	Arseni Triiodidum
Creta preparata	Creta
Lini semina	Linum
Liquor Calcis	Liquor Calcii Hydroxidi
Liquor Potassæ	Liquor Potassii Hydroxidi
Magnesia	Magnesii Oxidum
Oleum Terebinthinæ Rectificatum	Oleum Terebinthinæ
Pilula Ferri	Pilula Ferri Carbonatis
Potassa Caustica	Potassii Hydroxidum
Pulvis Ipecacuanhæ Compositus	Pulvis Ipecacuanhæ et Opii

OLD NAME.	*NEW NAME.*
Resina	Colophonium
Saccharum Lactis	Lactosum
Thyroideum Siccum	Thyroideum
Tinctura Camphoræ Composita	Tinctura Opii Camphorata
Tinctura Iodi Fortis	Liquor Iodi Fortis
Tinctura Iodi Mitis	Liquor Iodi Mitis
Tinctura Quininæ Ammoniata	Liquor Quininæ Ammoniata
Unguentum Zinci.	Unguentum Zinci Oxidi

PREPARATIONS, THE COMPOSITION OF WHICH DIFFERS IN THE NEW PHARMACOPŒIA

Liquor Adrenalini Hydrochloridi	Tinctura Hyoscyami
Liquor Arsenicalis	Unguentum Hydrargyri Ammoniati
Syrupus Ferri Iodidi	Unguentum Phenolis
Syrupus Ferri Phosphatis *c* Quinina et Strychnina	Unguentum Sulphuris
	Unguentum Zinci Oxidi

. . . . .

The inclusion in the new Pharmacopœia of such agents as Carbon Tetrachloride, Chlorbutol (Chloretone) Powdered Digitalis, Powdered Nux Vomica, Pituitary Extract, Physiological Salt Solution, Oil of Chenopodium, Soluble Phenobarbital (Luminal), Procaine (Novocaine), will be welcomed.

Amongst the agents omitted the following may give rise to surprise. Their use has become established in practice, and some knowledge of their composition is essential:—

The dilute mineral acids, Bismuth Subnitrate, Cannabis Indica, Strong Solution of Ferric Chloride, Solution of Zinc Chloride (Burnett's Fluid), Salol, Compound Tincture of Chloroform and Morphine (Chlorodyne), Zinc Carbonate (Calamine).

In changing the names of a number of preparations, the Commission appears to have been guided by a desire that the official name shall agree more closely with the chemical composition of the preparation, or the vegetable drugs it contains, *e.g.*, Arsenious Acid becomes Arsenic Trioxide; Compound Ipecacuanha Powder (Dover's powder) is to be Ipecacuanha and Opium Powder; Compound Tincture of Camphor (Paregoric) becomes Camphorated Tincture of Opium.

The term "resin" being indicative of a group, the name of that familiar agent obtained from the various species of Pinus, has been changed to "Colophonium."

Several of the changes in composition found in the new Pharmacopœia concern preparations in everyday use. The most notable are: Liquor Arsenicalis is to be a colourless and odourless liquid which is neutral in reaction. It will thus become compatible with solutions of the alkaloids, and it is for this reason, presumably, that Liquor Arsenici Hydrochloricus has been omitted.

The strychnine content of Syr. Ferr. Phosph. *cum* Quinin. et Strych. (Easton's Syrup) has been reduced. In future one fluid drachm of the syrup will contain 1/60th and not 1/32nd of a grain of strychnine.

For the convenience of prescription writing and to avoid misinterpretation, an official abbreviation of the Latin title of each preparation is now given.

Another useful addition is the insertion, after the monograph of a particular drug, of a list of the preparations of which that drug forms the principal ingredient.

As in the 1914 Pharmacopœia, the metric system of weights and measures is employed for all processes, chemical and pharmaceutical. Weights are given in fractions of a gramme or of a milligram. The terms centigram and decigram have been discontinued. Fluid measures are given as multiples or decimals of a millilitre.

Dealing with the question of domestic measures, the Commission states that as teaspoons, dessertspoons and tablespoons vary greatly in capacity, it is desirable that medicines should be measured in properly graduated measures. It would be preferable if the measure were graduated in mils or minims, and fluid ounces.

Under the heading "Symbols Employed in Prescriptions," the following recommendation is made. The symbol ʒi is often used to represent 60 grains, and also to represent 1 fluid drachm; and the symbol ℥i to represent sometimes 480 grains, sometimes 437·5 grains, and also to represent 1 fluid ounce. As these symbols are misleading, it is recommended that prescribers should cease to employ them. Instead, when the Imperial system is employed solids should be prescribed in grains (gr.) and ounces (oz. = 437·5 grains) and liquids in minims (m) and fluid ounces (fl. oz.) and the quantities written in Arabic numerals. In order to avoid confusion between gramme and grain the symbol G. should be used as the contraction for gramme.

It is felt that this recommendation might have gone further, for surely the time has arrived when a uniform system of weights and measures should be adopted by all branches of medicine. At the present time the prescriber is floundering amongst three different systems, Apothecary's, Imperial and the Metric. If any change is to be made, surely the proper one is to adopt entirely the official system of the Pharmacpœia, the Metric system. Such a change would necessitate the learning of doses in grammes, the use of measures graduated in millilitres (ccs) and the adoption of bottles to hold 25, 50, 100, 200 and so on, millilitres.

The Commission has done its work well: the Pharmacopœia has been brought up to date and it is most comprehensive.

THE VETERINARY PROFESSION IN SOUTH AFRICA

The Pre-Union Police Forces: (b) Natal

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Onderstepoort, South Africa

Natal Police[1] (1874-1913)

This force, known until 1894 as the Natal Mounted Police, was formed by Major Dartnell, later Major-General Sir John Dartnell, soon after the Langalibalele Rebellion (1873). The Corps was modelled on the lines of the Frontier Armed and Mounted Police, whose headquarters were at Kingwilliamstown. From 1875 to 1898, Dartnell was also Commandant of Volunteers, but subsequently the N.P., although acting as the permanent defence force, did not form part of the Natal Colonial Forces from an administrative point of view, as did the C.M.R. in the Cape Colony. The departmental head varied from time to time as follows: from 1893-1899, the Attorney-General; from 1899-1904, the Minister for Lands and Works; and from the latter date until Union, the Minister for Justice.[2]

Headquarters were at Maritzburg and the Corps passed through many vicissitudes, especially during its early days when the Natal Government refused to provide the necessary financial support. As an example may be mentioned the question of horses and stabling. Holt[1] states that at first "the Government would not sanction the purchase of horses for the men lest the animals should die of horse-sickness!" Later the Colonial Secretary decided that "the purchase of horses was to be deferred until the sickly season was over, and therefore stables would not be necessary for the present!" Eventually horses were secured, the men having to pay for them. Indeed, throughout the existence of the Corps all ranks owned their horses, the maximum purchase price being at first £25 and then later £30. In 1875 the Government sanctioned the purchase of pack horses to carry tents and kit, one pony for 10 men. There was a remount fund into which each man paid 3s. *per mensem* for a horse, the Government contributing pound for pound. From this fund was paid compensation on the death or casting of a horse. Until V.O. Collyer's appointment the fund was very much overdrawn, but with the improvements effected, the position was reversed; so much so, that when the N.P. ceased to exist the remount fund had a considerable credit balance. The men paid for the feeding of their horses and on out-stations purchased the fodder themselves.

In 1896, on the approach of rinderpest, a strong guard of N.P. was placed along the Transvaal and Free State borders and on other occasions the Corps assisted in the control of stock diseases.

The N.P. had a splendid service record, having taken part in the Zulu War (1879), 1st Boer War (1880-1), 2nd Boer War (1899-1902) and Natal Rebellion (1906). During the 2nd Boer War the corps was split up into detachments, *e.g.*, one serving in the Siege of Ladysmith, and another at the Defence of Mahlabatini, etc.; but in the Natal Rebellion it served as a body, the N.P. Field Force, under Lieut.-Colonel Mansel, and played an important part in the operations.

After unification of the four Colonies in 1910, the Corps was maintained by the Union Government until March 31st, 1913, after which the South African Mounted Rifles and South African Police were responsible for the policing of the Union.

VETERINARY SERVICE

One of the duties of the colonial veterinary surgeon, Samuel Wiltshire, was the care of the horses belonging to the N.P., especially those at headquarters. His appointment as C.V.S. dated from October 28th, 1874, *i.e.*, a few months after the formation of the Corps, and except for two short periods in 1883-4 and 1893, when Colonel Duck, A.V.D., and Mr. Vanderplank, M.R.C.V.S., respectively, deputised, he carried out this task until his retirement in 1896. It was during the early days of the Corps that "any man who gave his horse a sore back was mounted on 'Cracker,' a fractious mount which was frequently employed for obstinate recruits!"

Owing to the wet summer of 1880-1 (1st Boer War) the mortality of horses belonging to the N.M.P. serving with the Imperial Forces was so severe that an increased subscription to the remount fund became necessary.[3]

In 1884 glanders was exceedingly prevalent, especially in the southern parts of Natal. So unsatisfactory was the position among the police horses at Harding that Wiltshire ordered the destruction of every animal.

During the hostilities of 1884 between Cetowayo and Usibepu the detachment of 80 police stationed along the Zulu border near Krantzkop lost many horses from pneumonia, so cold was the weather.

On Wiltshire's retiral, Watkins-Pitchford, Principal Veterinary Surgeon, Natal, undertook "the veterinary duties of the N.M.P. at head-

[1] Holt, H. P. (1913.) *The Mounted Police of Natal.* John Murray, London.

[2] Letter dated May 29th, 1931, from Provincial Secretary, Natal.

[3] Clarke, W. T. (1931.) Natal Mounted Police, *Police Journal.* Vol. IV, p. 337.

quarters in Maritzburg, being gazetted[4] to that office in the rank of captain."

Among the many problems which received his attention was the prevalence of glanders throughout the Colony. In 1897 the disease broke out at Port Shepstone and 50 police horses were destroyed. In 1898 the situation was so serious that Law 14, 1887, was repealed and a new Glanders Act, No. 27, enacted, the chief advantage of this measure being the legalising of the mallein test.

After the annexation of Zululand in 1898, horse-sickness, which had occasioned heavy losses in the past, became a greater scourge than ever. The detachment of N.P. which accompanied Dinuzulu to his Usutu Kraal early in February, lost nearly all their horses, "and out of three spans of mules, only five remained alive." Police stations were next established in Zululand, and on account of the severe mortality "the remount fund became entirely exhausted, and a supplementary vote had to be placed on the estimates."

In February, 1898, J. Francis Thurston, who had been in the Natal Civil Veterinary Department, was appointed permanent V.O. to the Corps, the recent severe outbreaks of glanders and horse-sickness apparently causing the authorities to take this step. Thurston[5] states that his "duties mainly consisted of attendance to animals at and near headquarters and the purchase of fresh animals. The following year (1899) I was attached to the Natal Volunteers for their annual encampment which was held at Balgowan as the P.V.S. could not spare the services of the D.V.S., some of whom were attached to the various regiments as V.O.'s." After 15 months, Thurston resigned his appointment in order to take up a private practice in England, and for the next two years, *i.e.*, during the greater part of the Boer War, the N.P. did not have a regimental V.O. It is understood, however, that Mr. Frederick Charles Simpson,[6] at present a veterinary surgeon in Pretoria, who was then a trooper, acted as V.O. and drew "extra duty pay" for the work.

On July 29th, 1901, the second permanent veterinary appointment was made. This was John Bedingfield Collyer, who has kindly furnished a resumé of his duties in the N.P.[7] "The appointment was a part-time one at a salary of £250 to £350, and the rank that of sub-inspector. Private practice was allowed. The duties were those of veterinary and remount officer combined." When Collyer was appointed, the maximum price for horses was £25, but as the Imperial Government was paying more, he succeeded in getting the amount raised to £30, "at which it remained until the disbandment of the Corps." In order to give satisfaction, Collyer "requested that no man should be urged to take over a remount and he undertook to send 'his' own cheque for any horse not readily taken over." During the last few years of the N.P. the average purchase price was between £26 to £27. With regard to casting, Collyer's "policy was to cast any horse as soon as he was reported upon as being unsatisfactory and not to wait until he was worn out." All animals were then sent to headquarters and disposed of as soon as possible. "In this way the average price realised . . . . was raised from below £10 to about £18. . . ."

With reference to purely veterinary duties, when Collyer first took charge there was no office accommodation, pharmacy, or vote for the purchase of drugs and instruments. Further, the horses were scattered throughout the country, and the position generally was difficult, since the V.O. could only be in one place, as a rule headquarters, at a time. After office and pharmacy accommodation and a supply of drugs had been arranged, it was obvious that in supervising about 700 horses distributed throughout Zululand and Natal Proper, reliance would have to be placed on the men themselves. An endeavour was, therefore, made to educate the members of the Corps on the principles of animal management, and as to the diagnosis of the more common ailments, especially glanders, colic and horse-sickness. With this object in view, Collyer "instituted lectures, issued circulars of instruction . . . . and wrote a manual on 'Animal Management and the Treatment of the more common Ailments,' which book was subsequently adopted by the Union Defence Force and South African Police."

As a result of these efforts, there was "a very marked diminution in deaths and castings. . . . Colic, in particular, became very much less prevalent, and during the latter years deaths from this cause were always under ½ per cent. of the strength." Furthermore, the ability to "suspect contagious diseases and the immediate isolation and reporting of 'such cases' on outstations also had a very beneficial effect in the control of these diseases." Communicable diseases were always a menace, especially glanders, epizootic lymphangitis, mange and ringworm. Glanders again became prevalent after the 2nd Boer War and as so much of Collyer's time was taken up in travelling and mallein testing, it was impossible for him to conduct a private practice. Upon representing this to the authorities, he was given the rank

[4]Some time late in 1896. Letter dated January 17th, 1930.

[5]In a private letter dated November 28th, 1926.

[6]Having satisfied the examiners of the Natal Veterinary Board, Simpson was registered as a Veterinary Surgeon in 1904.

[7]In a private letter dated September 17th, 1926.

and pay of inspector with the relative rank of major when in the field.[8] Remounts were always malleined at the time of purchase and all horses coming from outstations to headquarters, or to join the Field Force,[9] were mallein tested whenever practicable. The worst outbreak of mange occurred among the horses of the Natal Border Police on their disbandment on July 1st, 1903. Some 250 horses were turned into a kraal at Vryheid at this time, and a few infected cases were the means of disseminating the disease among the entire mob. Collyer, having to take over these animals, applied the usual curative measures.

During the native unrest which culminated in the Natal Rebellion of 1906, Collyer accompanied the Field Force, comprising approximately 200 men. During the period of almost two years " only six horses were lost, one being killed by the rebels, two destroyed on account of wounds, one destroyed because of a fractured tibia and two dying from horse-sickness. For a portion of this time Collyer also acted as V.O. to the Transvaal Mounted Rifles and at various times assisted the officers of the N.V.C."

When the various police corps of the Union were organised into two forces, the S.A.M.R. (Defence Act 13 of 1912) and S.A.P. (Police Act 14 of 1912), Collyer was the only permanent veterinary officer remaining, this indicating that the services of V.O.'s generally had been but little appreciated. Collyer decided to transfer to the S.A.M.R., and later proceeded to Pretoria, where he was posted to the 4th Regiment, with the rank of captain, as from April 1st, 1913. It must be noted that the Report of the Inspector-General, S.A.M.R., for the year ending June 30th, 1913, states that there were no regimental V.O.'s and that " a V.O. has been appointed for the whole Force," *i.e.*, of five regiments! The first veterinary appointment to the S.A.P. was made in November, 1914.

[8] In the estimates for Expenditure of Department of Attorney General for the year ending June 30th, 1910 (*Gazette*, June 1st, 1909, Collyer's salary was set down as £508, whereas his medical colleague who was appointed in 1899 ranked as Sub-Inspector with a salary of £400. Probably he was able to supervise a private practice which Collyer's duties made impossible.

[9] The Field Force was a body of N.P. which was available for patrol duty in any district where there might be unrest; in other words, it was a permanent defence force.

APPENDIX

VETERINARIANS, NATAL POLICE. (1874-1913).

Name.	Period of Service.	Born.	College and Qualified.	Died.	Further Remarks.
Wiltshire, S.	1874—1896	24.5.44	1872, Lond.	1.3.23	——
Duck, F. Col. (A.V.D.) ...	Aug., 1883 / Mar., 1884	—	1867 „	—	Deputised during C.V.S.'s absence on leave.
Vanderplank, F. B. ...	1893	Jan., 1868	1889 „	1897	Deputised during C.V.S.'s absence on leave.
Pitchford, H. W.... ...	1896—1898	1866	1889 „	—	——
Thurston, J. F.	Feb., 1898 / May, 1899	17.8.75	1897 „	—	——
Collyer, J. B.[10]	29.7.01 / 31.3.13	1871	1897 „	—	Transferred S.A.M.R., 1.4.13. Retired, 1921.

[10] Collyer is seen in a group of N.P. officers appearing on p. 356, Holt (1913). He is second from left, top row.

Sheep fetched the lowest price within living memory at the autumn sheep sales at Rye (Sussex). Several flocks of full-grown Kentish ewes were knocked down at 1s. a head, while a large number of fine sheep fetched no more than 3s. or 4s. each. Altogether about 4,000 sheep were sold. The sale was well attended by buyers from a large area.

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The Scottish Milk Records Association has issued its report and records for 1931, containing records of 30,568 cows. A feature of the volume is an article by the superintendent of the Association, Mr. W. Stevenson, on the Danish dairy industry, from which it is learnt that the dairy farmer in Denmark does not get, any more than in England, a large share of the fruits of his industry, and that a relatively low standard of living is the general rule among Danish farmers.

LONGEVITY OF ANTHRAX SPORES

A correspondent to *The Lancet* of September 24th states that, in the course of his work as a bacteriologist, he has found an interesting fact regarding the length of life of the anthrax bacillus. Having noted that old dried-up cultures of anthrax spores still survived after having been stored in glass jars for just over two years, he kept agar cultures for longer periods, the oldest of which was made in January, 1914. To these old cultures, which resembled a small streak of horn-like substance, some sterile broth was introduced, and they were incubated at 37° C. for two days. All the tubes then exhibited the typical appearance. The growth in the oldest one was subcultured and examined microscopically; it showed a pure culture of *B. anthracis*. Thus the spores had survived after having been stored away for 18½ years.

Clinical and Case Reports

INTUSSUSCEPTION IN EQUINES

HAMILTON KIRK, M.R.C.V.S.

I had been somewhat troubled recently, in a certain stud of horses, with a succession of colic cases, the third of which ended fatally. The clinical symptoms were exactly similar to those usually observed in volvulus, but I was astonished, on *post-mortem* examination, to find that the cæcum was entirely filled with the ileum. Upon making an incision down the length of the cæcum, the invaginated portion of ileum was revealed in the exact shape of a corkscrew, which fact in itself struck me as extraordinary. The bowel was almost black and lay in a pool of sanguineous fluid.

Colic was first noticed about 1 o'clock in the afternoon, and death supervened in the early hours of the following morning, *i.e.*, after about 14 hours of agony. Nothing in the history of the horse or of this particular attack was suggestive of the cause.

I have made countless *post-mortem* examinations of equine carcasses, both in the Army and in practice, but this case is unique in my experience.

In passing, it is worthy of notice how ineffective are the usual anodynes in acute enteritis and twist, etc. Two or three ounces of chlorodyne have as much effect as so much water, and I have injected as much as 22 grs. of morphia in an endeavour to relieve the suffering animal, but without success. A colleague told me a few days ago that in a recent case of his, two ounces of chloral failed to give relief.

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MESENTERIC HERNIA IN A FOWL*

W. A. MILLIGAN
Glasgow Veterinary College

Subject.—A white Leghorn hen brought in for a *post-mortem* examination.

History.—On the previous day a hen had been observed straining very hard and that afternoon an egg had been found with a few specks of blood on it. The following morning the hen was found dead and the owner was desirous of ascertaining the cause of death.

Post-Mortem Examination.—The abdominal cavity was exposed by a longitudinal incision. A quantity of thickish, sanguineous fluid immediately flowed through the opening.

The exposed intestine appeared somewhat congested. This was reflected, when a much thickened portion, of a deep bluish-red colour, was brought to light. On closer examination this proved to be a "knuckle" of bowel passing through a tear in the mesentery which accommodated it exactly. The contents of this part consisted of thick, tar-like blood.

There was no evidence of eggs in any stage of development.

* Case in series presented for award under the N.V.M.A. Clinical Prize Scheme for Students, 1931.

H.M. STATIONERY OFFICE PUBLICATIONS

The undermentioned have been published recently. Copies can be purchased through any bookseller, or directly from H.M. Stationery Office, at the following addresses:—London: Adastral House, Kingsway, W.C.2, and 28, Abingdon Street, S.W.1; Cardiff: 1, St. Andrew's Crescent; Manchester: York Street; Edinburgh: 120, George Street.

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Statutory Rules and Orders, 1932:—		
803. Animal. Diseases of Animals. The Foot-and-Mouth Disease (Boiling of Animal Foodstuffs) Order, dated September 29th, 1932 ...	0 1	0 1½
Research:—		
Medical Research Council:—		
Special Report Series:—		
172. Tuberculous Disease in Children: Its Pathology and Bacteriology. July 28th, 1932	3 0	3 3

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THE VETERINARY PROFESSION IN BULGARIA

Bulgaria, with 12,500,000 domestic animals other than poultry, of which there are 10,000,000, has 600 veterinarians, of whom 30 are army officers, 50 are engaged in teaching, 182 are officers in the Department of Agriculture and 40 are area and 14 district veterinary officers. The remaining 280 are men with elementary veterinary education, survivors of the old regime in force before the Russian occupation. In other words, except for these 280 "Revierveterinärfeldscher" all veterinarians in Bulgaria occupy official positions. The veterinary profession has complete control of the inspection of all food of animal origin, cattle houses, markets and slaughterhouses. Clinical veterinary surgery and medicine is also on a state basis. There are 366 large and small veterinary clinics in Bulgaria, all conducted by official veterinarians.—*Vet. Med.*

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A case against a farmer for selling milk deficient in butter-fat was dismissed by the Barry magistrates, after evidence had been given that the milk had not been tampered with. Referring to this, it was suggested to the Glamorgan Health Committee by a member that the killing of cows whose milk was not up to the required standard should be insisted upon.

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When members of the Chester Society of Natural Science and Art visited the United Dairies (Wholesale), Ltd., creameries at Calveley recently, it was stated this depôt is capable of dealing with 40,000 gallons of milk per day. Approximately 400 samples of milk are tested daily.

Abstracts

[Observations on The Bovine Tubercle Bacillus in Human Tuberculosis. Griffith, A. Stanley (1932). *Brit. Med. Jour.* No. 3741; pp. 501-3.]

Dr. Griffith's paper to the Section of Tuberculosis at the Centenary Meeting of the British Medical Association is here reproduced in full. It is an exposition, as convincing as it is important, of the grounds upon which, as a participant in the investigations concerned, he bases his statement that " all the arguments advanced by Koch in support of his opinion that bovine tuberculosis is of little importance for man have been disproved."

The report of the Royal Commission, in 1911, was the confirmatory outcome of the protestations of those who contested Koch's contention, but the cases examined by the Commission, being to some extent selected and derived from London hospitals only, did not provide an accurate basis for inference as to the relative frequency and distribution of infection with the bovine and human types of bacilli; and accordingly the enquiry was continued on a broader basis. The results of investigations down to 1931 demonstrated beyond doubt that bovine infection is responsible for a considerable amount of human tuberculosis in Great Britain. Of the different non-pulmonary forms of tuberculosis cervical adenitis gave the highest percentages of bovine infection—85·7 in England and 84·9 in Scotland in children under five years of age, and 45·7 for England and 73·6 for Scotland at all ages. Then follow lupus with 48·6 and 53·8 per cent. for England and Scotland respectively, meningitis with 30·1 per cent. for England, and bone and joint tuberculosis with percentages of 18 for England and 42·8 for Scotland. In striking contrast, of 1,040 cases of phthisis pulmonalis examined in England and Scotland only 2·3 per cent. were definitely attributable to bovine bacilli, but these examples of phthisis of bovine origin are very significant. Many of the patients gave a history indicating that they had been infected in early life, and " these instances show conclusively that persons infected in childhood with bovine tubercle bacilli may in adult life develop phthisis pulmonalis due to this same bacillus, and may possibly spread bovine tuberculosis to other human beings and to animals through the agency of sputum." Moreover, " It is clear that the bovine tubercle bacillus can produce all the different forms of clinical tuberculosis and can set up tuberculous lesions in every organ and gland indistinguishable from those caused by the common human tubercle bacillus," while " the ability of the organism to produce the progressive and fatal forms, though entering the body from the alimentary canal—a more difficult channel of infection than the respiratory tract, the usual channel for the human bacillus—shows that the bovine bacillus must have a virulence for man at least as great as that of the human type."

In Dr. Griffith's opinion, the figures given in the People's League of Health survey of tuberculosis of bovine origin in Great Britain (recently reviewed in these columns), *viz.*, 2,000 deaths (mainly of children) caused annually by the bovine tubercle bacillus and 4,000 fresh cases of bovine infection each year, underestimate the loss to the community in deaths and disease from this cause.

The author stresses the menace by giving the results of some recent investigations, as an example of which one may quote the outcome of the examination of cultures of bacilli obtained from eighteen children who died this year from tuberculous meningitis: of these strains six (33·3 per cent.) were of the bovine type. Sputum examinations by Cumming, Munro and the author, in England and Scotland, bring the number of recorded cases of bovine phthisis occurring therein to forty-five—twenty-nine in women and sixteen in men.

The author proceeds to discuss the question of mutation of the bovine to the human type of bacillus, concluding that while there is no certain evidence that bovine bacilli change into human bacilli during residence in human tissues, there is, on the other hand, plenty of evidence that these bacilli can retain their characteristic properties during the whole course of a case of tuberculosis. There is no direct evidence to support the view that bovine tuberculosis is responsible for more cases of human tuberculosis than can be ascertained by the ordinary bacteriological methods.

W. B.

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[Operations under a Valvanol Film and after-treatment of Wounds with Concentrated Valvanol. Saxinger. *D.T.W.* No. 23. June 4th, 1932. 357.]

Reference is made to the difficulty in attaining asepsis in veterinary surgery, and the fact that, particularly in the larger animals, antisepsis has a wider practical utility. In practice, many factors mitigate against efficient healing, so that technique should include the use of simple antisepsis to keep the operation wound free from secondary infection. The author has had satisfactory results from the use of Valvanol (Perleberger Impfstoffworks, Berlin), which is a soapy alcoholic solution of chlorinated aromatic compounds. In 1 per cent. aqueous solution Valvanol kills the ordinary pyogenic micro-organisms in one minute, while, being non-irritant even in the concentrated form, it exerts no bad effects on the patient's skin or on the hands of the surgeon.

These special properties of Valvanol suggested its use in the rapid disinfection of the site of operation. Since it proved satisfactory and appeared to assist after-healing, all operation wounds were treated twice daily with Valvanol applied lightly to the wound with cotton-wool. Instead of the usual preliminary washing and disinfection with tincture of iodine, the simple application of concentrated Valvanol on cotton-wool rapidly disinfects the field of operation and leaves a thin film of the substance on the surface. Until granulation begins the wound is painted at intervals with Valvanol, which renders the surfaces unsuitable for bacterial growth. Uncomplicated healing has been observed in the castration wounds of pigs and boars, cryptorchid operations and in ovariotomy in sows, also in wounds of the extremities in cattle and horses.

Valvanol is cheap, active, convenient and simple in use and is preferred to tincture of iodine. Its soapy nature does not appear to influence the firm holding of instruments.

W. L. S.

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[**Equine Dentistry.** Becker. *D.T.W.* No. 31. July 30th, 1932. 484.]

Emstoff was the pioneer in the sphere of dentistry of domestic animals, and he advised the filling of teeth as an aid to their conservation. His recommendation, however, did not meet with any great application, chiefly by reason of the fact that animals required to be narcotised and cast for the operation. Becker states that the process is now a practical and reasonable one, due to simplification of the technique, which allows the operator to work on the standing animal. The head of the horse is restrained to a pillar by a special head fastener introduced to the clinic at Sarstedt.

The instruments for boring and filling have been modelled on those used in human dentistry. The principal need for dentistry in the horse arises from defects in the cement and enamel of the molars, defects in the dentine layer and caries of the back teeth. One of the chief pathological defects in the teeth of equidæ is an expulsion of the cement in the enamel cylinder, causing a more or less large cavity. This is due to a developmental anomaly, and leads to caries.

In filling, the technique employed is similar to that used by the human dentist, and boring is done with a hand machine fitted with large needles. Copper amalgam, a mixture of copper and mercury, is preferred to other materials and has proved satisfactory in over two hundred cases. It is easy and flexible in use, relatively economical since the excess may be used again, and, contrary to other filling materials, on account of its low permeability it forms an insensitive filling which may be kneaded into the dressed cavity, meanwhile pressing out drops of moisture. The filling is hard in two hours and the patient may then be fed.

Disinfection is satisfactorily carried out with tricresol-formalin applied on cotton-wool tampons to the cavity in the tooth. In small and medium-sized fillings the amalgam usually may be added in a minute or so, but disinfection may be continued while the tooth is protected by a temporary stopping of gutta percha. The cavity is dried with alcohol and blasts of air.

W. L. S.

Reports

CITY OF EDINBURGH

ANNUAL REPORT OF THE VETERINARY DEPARTMENT FOR THE YEAR 1931

We are in receipt of the report of Mr. Arthur Gofton on the work carried out by the Veterinary Department of the City of Edinburgh for the year 1931. Following the arrangement of last year, the report comprises four sections, namely, those dealing with (*a*) The Milk and Dairies (Scotland) Act, 1914; (*b*) the Bacteriological Laboratory; (*c*) the Inspection of Meat and Other Foods and (*d*) the Diseases of Animals Acts.

A. MILK AND DAIRIES (SCOTLAND ACT, 1914

In accordance with practice, the cattle in all registered premises in the city have been examined at intervals of one month. During the year, 915 visits were made to registered dairies and all cows thereon examined, and under special provision 72 visits were also paid to non-registered dairies. The newly-calved cows exposed for sale in Gorgie Market, 2,236 in number, were also examined. This represents an average of 43 cows exposed for sale each week. Six cows exposed in markets were found to be suffering from scheduled forms of tuberculosis, three of which had tuberculosis of the udder. The animals were dealt with in accordance with Article 12 of the Tuberculosis Order of 1925, and incidentally were all slaughtered by their owners at their own risk.

Tuberculosis in Dairy Cows.—During the year, 29 cows on registered premises within the city were found to come within the scope of the Tuberculosis Order and were consequently dealt with. Of these, 18 had tuberculosis of the udder, ten suffered from chronic cough and showed definite clinical symptoms of tuberculosis, and one from emaciation due to this disease. It is disconcerting to read that abattoir statistics in Edinburgh show a higher percentage of tuberculosis in cows in 1931 than the average for a

period of years. Out of 3,777 cows slaughtered, 1,780, or 49·18 per cent., were affected with tuberculosis in some degree. The average incidence of disease for the previous five years was 42·6 per cent. In 9·89 per cent. of the cases the disease was sufficiently advanced to necessitate condemnation of the whole carcass. In 16·74 per cent. tuberculosis affected the viscera and localised areas of the carcass, and in 73·37 per cent. it was confined to one or more of the visceral organs. Mr. Gofton, in this connection, makes the following statement: "The importance of the economic side of tuberculosis is well illustrated by the figures quoted in relation to meat inspection where it is shown that tuberculosis is responsible for 86·7 per cent. (by weight) of seizures of cow beef from all causes, and 83·9 per cent. (by weight) of all classes of beef."

Tuberculosis in Milk.—The Department of Health in Scotland, with a view to ascertaining the extent of tuberculosis in milk as sold to the public, arranged that 1,000 samples from each of the four populous centres of Scotland should be subjected to the biological test. This work in Edinburgh was carried out jointly in Mr. Gofton's Department and the Bacteriological Department of the University of Edinburgh. In Edinburgh 810 samples were examined during the year. This number comprised approximately equal numbers of farm milk as delivered in the town by the producer, retailed milk as sold over the counter in shops and pasteurised milk. Twenty-one results were inconclusive from the premature death of the guinea-pigs or otherwise, and the result of the remaining 789 samples showed a total of 82 which contained living tubercle bacilli.

Of 270 farm samples 32, or 11·85 per cent., were positive, a higher percentage than the average in Edinburgh of 7·8 per cent. over the last 14 years. Two of the positive samples originated in the city and the responsible cows were detected in each case. Of the remaining 30 samples of positive milks, in respect of 20 samples, 32 tuberculous cows, on 21 premises, were detected and slaughtered. Of the remaining ten, one was incomplete at the end of the year, but nine showed that as the result of the biological test the infection had been eliminated between the taking of the sample and the clinical examination of the cows.

Of the retailed milks, 42, or 16·22 per cent., were positive as against 11·85 per cent. of the farm milks. It is explained that the higher percentage is accounted for by the distribution of the infected milk from one source to a number of retailers and also by the bulking of milk on retailers' premises from a number of producers with a greater chance of including an infected supply. Mr. Gofton refers to the difficulties encountered in tracing the source of such milk from faulty information and other causes, but, nevertheless, 17 of the positive shop samples were traced to 21 cows which were removed from the herds involved and consequently destroyed. At least 31 producers were included in the remaining 25 samples, but the milk when tested biologically yielded negative results.

Pasteurised milk when treated by the "flash" process gave five positive results. All these samples were traced to one depôt which was supplied by 19 producers. The infection was traced to one cow and on her removal infection ceased. It is satisfactory to note that the firm in question abandoned its "flash" process and installed a "holder" apparatus. Milk pasteurised by the "holder" process showed three (or 1·2 per cent.) positive results, but in each case the apparent failure was traced to temporary defects of the plants and was not attributable to defects inherent in the process.

Milk (Special Designations) Order, Scotland, 1930.—There is one Grade "A" producer in the city and one "Certified" herd owned by the Royal Victoria Hospital Tuberculosis Trust at Gracemount Farm. At the two tuberculin tests 97 animals were tested and no reaction occurred, nor was there one amongst the 53 young stock belonging to this farm kept at Romano Bridge, Peeblesshire.

The city hospitals are supplied with milk from the Corporation Farm, which averages 90 cows in milk. No animal reacted to the test, which was applied twice during the year.

B. BACTERIOLOGICAL LABORATORY

A report by Mr. W. Jowett, the Bacteriologist, is included as heretofore. Details are given of a large volume of work done during the year. Out of 152 milk samples examined from individual cows, 21 showed the presence of tuberculosis microscopically. Of the remainder, 13 were submitted to the biological test and four proved positive. Tables are given showing the result of the bulk samples of milk examined for tuberculosis of which mention has already been made. Out of 295 of these samples examined for *Bacillus abortus*, 49, or 16·6 per cent., furnished evidence of an infection with this bacillus. Mr. Jowett points out that these results are only based on those which showed macroscopic lesions in the experimental animals. Had the sero-agglutination test been applied to all these experimental animals, he surmises that the number showing infection might well have been more. One case of tuberculosis in the sheep was verified. This is only the third case in recent years and that, out of an average number of 140,000 or 150,000 sheep killed in the city abattoirs annually, shows the extreme rarity of this disease in the sheep. The type of organism was bovine, as was also the case in the two other recorded cases.

C. INSPECTION OF MEAT AND OTHER FOODS

The number of animals exposed for sale in the fat markets of the city was 311,900 and the number passed through the abattoirs during the year, 195,027. The total percentage incidence of tuberculosis in animals slaughtered was as follows:—

Oxen	5·18	10·76 per cent.
Bulls	25·40	
Cows	49·18	
Heifers	5.25	
Calves	1·25	„ „
Swine	5·61	„ „

Details of the consignments of food examined at the Port of Leith are given and the grand total of foodstuffs condemned in the city area. This is as follows:—

Foodstuffs condemned	lbs.
Abattoirs (carcasses)	317,759
Offal	122,355
Shops, markets, etc.	49,564
Total	641,378 = 286 tons, 6 cwt. and 66 lb.

Details are also given in tabular form of all animals and parts of animals condemned as unfit for human consumption, and special attention is given to the comparison between tuberculous and non-tuberculous diseases as causes of condemnation.

D. DISEASES OF ANIMALS ACTS

Anthrax.—Two deaths occurred from this disease, one being in a bullock temporarily accommodated in a market lairage. Twenty-two investigations were made on animals reported as having died and 94 carcasses were examined which were found dead in trains on arrival or in the lairages and so on.

Foot-and-Mouth Disease.—Despite the serious outbreaks in the country last June, Edinburgh remained free. Difficulties were experienced when the general "Standstill" Order came into force, from a variety of causes. In this connection the Local Authority submitted the following suggestions to the Ministry of Agriculture:—

"That the titles of Orders relating to emergency conditions, in connection with foot-and-mouth disease, and to infected areas, should be stabilised, so that stock forms of licence may be kept in hand by local authorities, and may be made valid and in compliance with the Order by the addition of a date which can readily be inserted by hand or by means of a rubber stamp.

"That the conditions applicable to movement licences should also be stabilised in order to permit of the issue of valid licences setting forth the conditions attaching to the licence, when the issue of licences must of necessity be made before the actual Order is received or before printed forms can be obtained.

"When the Ministry notifies by telegram the issue of an Order taking immediate effect, the title of the Order should be clearly specified in the telegram, so that licences issued locally before the actual Order is received may be made properly valid and not open to challenge."

No case of sheep scab or parasitic mange occurred, though three suspected cases of the latter were investigated, with negative results.

Swine Fever.—Arrangements have been made for the Veterinary Officers of the Local Authority to act as local Veterinary Inspectors for swine fever. Never for many years has the disease been so widespread. Forty-four suspected cases were investigated, of which 40 were confirmed by the Ministry.

Tuberculosis.—This has already been commented on, but it is interesting to note that 62·85 per cent. of the cases dealt with were of udder disease. This figure compares with 19·3 per cent. of milk and udder cases out of the total number of cows and heifers slaughtered in Great Britain under the Order in 1930.

Importation of Animals.—Irish and Canadian Cattle.—The number of Irish cattle exposed for sale at Gorgie Market was 18,095 and 356 Canadian cattle were received under licence and all were consigned to the slaughterhouse.

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WEST RIDING COUNTY COUNCIL

CHIEF VETERINARY OFFICER'S REPORT FOR THE YEAR 1931-32

The fifth annual report of the Chief Veterinary Officer of the West Riding County Council contains an interesting and instructive account of the administration of the Diseases of Animals Acts and Orders and the Milk and Dairies Acts and Orders in this county during the year 1931-32.

The report is divided into two sections, one dealing with Diseases of Animals Acts and Orders and one section dealing with Milk and Dairies Acts and Orders.

In the first section a detailed list of the scheduled contagious diseases occurring in this country is given, and particular reference is made to those which have occurred in the county during the period under review.

The incidence of anthrax appears to be small for so large an area and with such a heavy stock population. Nine outbreaks were confirmed during the year. In two instances, it is noted that the carcasses were cremated where the microscopical examination of the blood gave doubtful results. Unnecessary cremation should be avoided if the microscopic examination of the blood is carried out within a reasonable time after death has occurred.

A diminution in the number of cases of sheep scab is noted, as compared to the two previous

years. A strong plea is made for more co-operation from sheep owners, and the necessity for reporting suspected cases is emphasised.

The administration of the Tuberculosis Order is described in detail. During the year dealt with in the report, 1,143 bovine animals were slaughtered under the provisions of the Order, as compared to 923 in the previous year, an increase of 220 animals. Four hundred and eleven of these animals (36 per cent.) were affected with tuberculosis of the udder or giving tuberculous milk. The value of routine inspection in detecting these cases is clearly manifested, as 280 out of the 411 cases were detected by routine clinical examination. Out of the 1,143 animals slaughtered only six (·5 per cent.) were found to be showing no macroscopic lesions of tuberculosis, a remarkably small percentage considering the number of animals dealt with, and a tribute to the accuracy of the diagnostic work carried out by the veterinary staff. The tuberculin test was only used in 130 cases as an aid to diagnosis.

The amount realised from the salvage of carcasses dealt with under the Order is of interest, the sum of £1,819 7s. 5d. being received from this source. This sum was more than sufficient to meet the local authority's share of the compensation payable under the Order. This is a very satisfactory result in view of the present low value of hides and the difficulties experienced in many districts in realising a satisfactory price for salvage.

A short reference is made to contagious abortion and its prevalence in the county. Investigations have apparently been carried out in regard to tracing the source of infection in cases of undulant fever.

The veterinary staff carries out the microscopic examination of samples of milk from suspected udders and also examines samples of sputum. Two hundred and sixty-six samples of milk in this way were found to contain tubercle bacilli, and 193 samples of sputum were also found to contain tubercle. This appears to be a most satisfactory aspect of the work carried out by the veterinary staff, and there can be no doubt that much time is thereby saved and delay through having to wait for laboratory reports avoided.

The second section of the report deals with the results of routine dairy inspection and the tracing of tubercle-infected milk supplies. A considerable amount of milk sampling appears to be carried out in the county with a view to supplementing dairy herd examinations. Approximately 720 bulk samples were taken in the Administrative County Area during the year, of which 19 (3 per cent.) were found to contain tubercle bacilli. In addition to these, 42 reports were received regarding tubercle infected milk from consuming areas outside the Administrative Area. Thirty-nine of these cases are dealt with in the report, and in 28 of the completed investigations the source of the infection was found. Eleven cases, however, gave negative results, but in five of these the diseased animals were found to have been removed from the farm prior to the investigation being carried out. Doubts are expressed as to whether cows discharging tuberculous sputum can be responsible for infecting the milk supply. In the writer's opinion, such cows are probably a more frequent source of infection of the milk than is generally recognised.

The results of the clinical examination of dairy herds in the county are described in the report. More frequent inspection of dairy herds is advocated in order to safeguard milk consumers. It is suggested in the report that the amount of inspection necessary in each district varies according to the type of farm and class of cows, and whilst two visits in the year may suffice for many of the butter making farms, it is quite inadequate in the case of milk-producing farms where older cows are kept; for the latter type of farm, quarterly inspections are considered to be the minimum necessary. In the majority of the districts in the West Riding two inspections are carried out each year, but in 11 sanitary districts a quarterly inspection has been arranged for.

The report furnishes complete statistical details regarding the effects of these clinical examinations.

The diagrams in appendix II show very strikingly the marked increase in the number of cows slaughtered and found to be suffering from tuberculosis of the udder or giving tuberculous milk since the inauguration of routine dairy herd inspection, and a corresponding decline is also clearly shown in the number of emaciation cases.

The report as a whole makes exceedingly interesting reading and records a year of well-organised and efficient county veterinary administration. Its perusal can be commended to all interested in the public health and veterinary services of the country.

MORPHINE IN STRYCHNINE POISONING

Mr. S. Van Rensburg, M.R.C.V.S., in *The Journal of the South African Veterinary Association*, records that about nine years ago he first tried the effect of a large dose of morphine as an antidote to strychnine poisoning in dogs. In this instance a bull terrier found *in extremis* was injected subcutaneously with a solution of four grains of morphine sulphate. Twenty-four hours later, the dog had recovered completely.

Since then a large number of cases of both malicious and accidental poisoning of dogs by strychnine have been treated in this manner by him, the dose varying from 1½ grains in the case of a two-month-old fox terrier pup to 5 grains for a large Alsatian, and in not a single instance has the drug failed to bring about recovery.

N.V.M.A. Divisional Reports

LANCASHIRE VETERINARY MEDICAL ASSOCIATION*

MEETING AT HARPER ADAMS AGRICULTURAL COLLEGE

The Annual Summer Meeting of this Division was held at the Harper Adams Agricultural College, Newport, Shropshire, on Friday, July 22nd, 1932.

The chair was occupied by the President, Mr. J. Spruell, and there were also present:—*Members*: Messrs. C. F. Shawcross, G. O. Davies, H. Sumner, junr., K. D. Downham, H. S. Caldwell, R. C. Locke, H. Burrow, R. Hughes, Warwicke Fowle, A. L. Mullen, Professor Gaiger, Messrs. F. H. Leech, A. H. Leyland, H. Alldred, W. Kendrick and A. J. Caldwell. *Visitors*: Messrs. R. Hopps, J. McGhee, W. F. Wilson, J. Martin and Major R. Clunas.

It was proposed by Mr. Caldwell, seconded by Mr. Davies, and unanimously resolved, that the minutes of the previous meeting be taken as read.

CORRESPONDENCE

Acknowledgment of Donation.—A letter was read from Mr. R. C. Locke, Hon. Secretary of the National Veterinary Benevolent and Mutual Defence Society, acknowledging with thanks receipt of a donation of two guineas to the funds of the Society.

Resignations.—Letters tendering resignations were read from Mr. J. Cochrane-Dyet, Hooton, owing to the disposal of his practice, and Mr. P. Manuel, Crewe, owing to his retirement from practice. On the proposition of Mr. Locke, seconded by Mr. Hughes, the resignations were accepted with regret.

Apologies for unavoidable absence.—These were received from Messrs. E. J. Burndred, A. W. Noel Pillers, H. T. Matthews, P. Manuel, E. H. Curbishley, J. Urmson, J. H. Lomas, J. O. Powley, G. T. Webster and G. H. Locke.

ELECTION OF HON. ASSOCIATE

The President announced that at a meeting of the Council of the Association it was resolved that the meeting be recommended to nominate Colonel J. W. Brittlebank as an Hon. Associate of the Association, and on behalf of Mr. Curbishley (who was unable to be present) he had pleasure in nominating accordingly. Mr. Spruell referred to the work done by Colonel Brittlebank on behalf of the Association, stating that he had occupied an honourable position and had been an office-bearer and member of the Council for almost as many years as he had been a member of the Association. Mr. Hughes seconded the nomination, and referred to the valuable services rendered by Colonel Brittlebank on the Council of the R.C.V.S., especially in connection with the recent Irish Free State Act.

New Members.—Mr. Spruell proposed that Messrs. A. B. Kerr, M.R.C.V.S., D.V.S.M., Chester, and J. Adamson, junr., M.R.C.V.S., Bolton, be elected members of the Association. Mr. Locke seconded, and the proposition was carried unanimously.

Mr. W. H. Watkins Baird, B.SC., M.R.C.V.S., D.V.S.M., Hooton, was nominated for membership by Mr. J. Spruell, and Mr. R. Hopps, M.R.C.V.S., Liverpool, was nominated by Mr. A. L. Mullen.

Donation to the Liverpool Sub-Committee of the Lancashire Free Clinic Committee.—It was proposed by Mr. Caldwell that a donation of £5 be paid by the Association to the Liverpool Sub-Committee, in order to defray expenses for the past year. The point was raised by Professor Gaiger as to whether such a resolution was necessary, as he was of the opinion that the expenses should be paid as they occurred. After a discussion, the proposal was seconded by Mr. Shawcross and carried unanimously, it being understood that all future expenses of the Sub-Committee would be paid by the Association as they arose.

PRESENTATION TO THE PRESIDENT

Mr. Sumner was called upon to present a handsome solid silver coffee service, suitably inscribed, to the President as a token of the members' appreciation and thanks for his past services as Secretary. In making the presentation, Mr. Sumner said his duty was a pleasant one, and the pleasure was only spoiled by the feeling that it ought to be in more able hands. When Mr. Spruell deemed it advisable to relinquish the duties of Secretary, the members thought they had found a ready-made President to fill the office, and so they made him their President with a view to giving him some idea of their appreciation of his work on their behalf in the past. But on reflection they felt that, though they had honoured him by making him their President, yet it was only a very small mark of appreciation for the work which he had done for a long and difficult period, and so it was thought that there should be a more lasting and tangible token of their appreciation of what he had accomplished. His efforts had been of the whole-hearted and most generous variety, for which they would ever feel grateful. They did not think—they knew—that they would never be able to repay him; in fact, they knew that it would be distasteful to him to think that they were making any effort to repay him, but they knew that he would accept their small gift as a tangible token of appreciation

* Received for publication September 17th.

and that it would inspire him to re-double his efforts. (Applause.)

The President, in response, expressed his thanks to the members for their kindness, and to Mr. Sumner for the way in which he had made the presentation. The work had always been interesting and he did not need any reward, and anything he could do in the future he would be only too pleased to do. (Applause.)

Concerning Calculi.—Mr. Shawcross exhibited a specimen of urinary calculus, weighing just short of 10 ounces, taken from a bitch aged eight years.

Mr. Warwick Fowle said that he had a calculus which he would have brought had he known there was one going to be exhibited. A bitch was brought to his surgery some time ago. There was no distress except constant micturition. The owner would not consent to an operation, and eventually the animal was destroyed on account of another condition. On examination it was found that the calculus filled practically the whole of the bladder: it was certainly bigger than the largest walnut he had ever seen, and it was a remarkable fact that the bitch had lived for six years without having trouble.

There being no other business, the meeting was declared closed for luncheon.

THE LUNCHEON

An excellent luncheon was provided at the College, and was presided over by the Principal, Dr. C. Crowther.

At the conclusion of the lunch, Dr. Crowther remarked that he would like to say, on behalf of everyone at the College, how very pleased they were to have the opportunity of receiving the Lancashire Veterinary Medical Association. (Applause.) He could assure them that it was regarded as a compliment on the part of the Association that they should wish to be present that day, and he hoped they would feel that it had been worth while their holding the summer meeting there. They were accustomed to receiving parties of farmers; in fact, there was a number of such parties visiting the College during the next two weeks. They were, naturally, very pleased to see farmers, but he thought they were even more pleased to see the members of the Association, because they were their natural colleagues in the work of education. The members of the Association went about amongst farmers, carrying on the work of education, and they at the College regarded them as a body to which they could turn whenever assistance was required.

Dr. Crowther proceeded to outline the arrangements for the afternoon and evening, and referred to the features in connection with the work of the College which the visitors would be shown. He also paid tribute to his colleagues, Mr. Downham, Mr. Thompson, and Professor Parkhurst, Director of the National Institute of Poultry Husbandry.

Following the luncheon, a photograph was taken, and the party set out on a tour of inspection of the Pig-Feeding Experimental Section, National Institute of Poultry Husbandry Section, poultry disease exhibits, and the Friesian dairy herd. Tea was provided on their return to the College.

Tour of Inspection

(1) NATIONAL INSTITUTE OF POULTRY HUSBANDRY

In connection with this visit, the following observations on the work of the Institute will be of interest:—

The National Institute of Poultry Husbandry at the Harper Adams Agricultural College began its work in 1925 and is now in the seventh year of its existence. This branch of the National Poultry Institute Scheme provides advanced courses of instruction in poultry, waterfowl and rabbits; undertakes experiments which are of importance commercially, and through lectures, farm visits, conferences, and reports, makes available the results of the research and observations of its staff members.

The demand for students trained at the Institute remains good and there is every indication that the majority of them are making good after leaving the Institute. It is probable that the Research Certificate Course (third year) will be offered for the first time during the next session.

Experimental Work.

Owing to the high price of milk and milk products it was felt desirable to determine if this type of protein rich food could be omitted from the recommended mashes. Various combinations of Soya bean meal, dried skim milk and meat and bone meal were tried, comparing two sources only, as well as the three sources.

Work has not progressed sufficiently for definite conclusions, but during the winter months, *i.e.*, the period of high egg prices, those pens receiving milk gave a slightly better egg production. On the whole the use of milk at least gives sufficient extra production to pay for the added cost of the mash.

It would not appear to be worth while, from experiments in progress, to lower the protein content of the ration from winter to summer. Such a change was accompanied by a slight drop in egg yield that counterbalanced the lowered price of the mash. A total protein analysis of 16-17 per cent. seems to be the best for an all mash ration.

The second year of the lighting project has been completed, with outstanding results, the pen receiving all night light showing the greatest amount of profit. The "evening lights,"

"morning lights" and "morning and evening lights" pens gave about the same results. Of the pens not receiving lights, the one with a slightly higher protein mash has not given as good production as that fed normally. Lighting was profitable for second year birds.

An experiment has been in progress to determine the economic level at which wheat meal can be fed in a ration to laying stock. From the results that have been obtained up to 80 per cent. of the maize meal of a ration can be replaced by wheat meal with safety. The total replacement of maize by wheat meal has depressed growth and decreased production.

Confinement studies have been continued, and, under the conditions of the experiment, it appeared doubtful if there was sufficient sunlight available during typical winter weather to prevent rickets in adult hens. The use of cod-liver oil as a source of vitamin D has proved superior to direct sunlight alone. There can be no doubt that Vita Glass passed some of the ultra-violet light, but apparently must be supplemented with cod-liver oil to provide adequately for the vitamin D requirements of the laying hens.

The comparisons between all mash and pellets for chicks have been continued and have included groups with and without bran and both in batteries and under colony brooders. The weights of all groups were good. Cannibalism was very bad in the pellet groups but there was very little of this trouble in the mash groups. There was less food wasted in the pellet pens. On range the mash pullets were better birds than those on pellets, having a more uniform growth and better feathering. For laying hens, pellets have been better than all mash. Pellets have not been nearly as satisfactory for breeding stock as all mash: this is probably due to the destruction of at least one of the B vitamins. Feeding yeast has had an immediate influence in the improvement of hatching results.

The slatted floor housing of White Wyandottes and Rhode Island Reds has proved very successful during the past year. The battery brooder studies have been conducted this year, principally with the Rhode Island Red *x* Light Sussex cross and relate to table poultry production only. The comparison of weights of groups on the same ration in batteries and colony houses did not show the growth with one method to be markedly superior to that in the other. Some progress has been made in the relation of the minerals of the ration to porosis and rickets and a detailed report will soon be issued. No advantage was obtained in growth by maintaining the high protein content of the starting ration after eight weeks. Preliminary observations on the use of linseed oil meal for feather growth do not indicate that it is needed and that the management of the batteries is the principal factor in preventing poor feathering.

A considerable number of experiments comparing trough feeding and trough feeding and cramming have been carried out and the results are being analysed.

An examination has been made of the relationship between the weight of a bird at four weeks and (1) its gain to eight weeks and (2) its gain to 14½ weeks, when ready for fattening; and (3) between the weight at eight weeks and the gain made before being brought in for fattening.

The survey of the quality of the eggs of the Institute is continuing and a special study is being made of factors influencing yolk colour and the quality of egg white. The N.I.P.H. is co-operating with Cambridge investigators in the latter study. Duck egg quality studies have also been in progress for some time and are continuing.

Comparisons of pens of White Runner ducks on meat and bone meal and fish meal have continued for three years and from the indications the relative cost of the two products is the prime consideration.

No indications can be given at present of the comparison between pellets and all mash for table ducklings, which was started last spring.

Further studies are being made of intensive turkey production, and it is hoped to find out whether early or late hatched turkeys are the most profitable. Figures on growth and cost of production are also being obtained on a small group of Roman geese.

In the Department of Rabbit Husbandry about 250 rabbits are involved in experiments which are concerned with cheap maintenance rations, a study of rickets in rex rabbits, and the production of a true breeding strain of agouti rabbits.

A progress report was published in September, 1931, and gives a detailed description of the facilities for instruction and research at the Institute and a summary of work completed and in progress at that time. About the same time a bulletin on "Methods of Artificially Lighting Winter Layers" was issued. The results reported showed that the "morning and evening lights" gave the best results as compared with "morning lights," "evening lights" and "all night lights" systems for pullets, that artificial illumination results in increased winter food consumption and egg production and should result in increased profits provided the cost of supplying light is not excessive. A further Bulletin reports results of experiments covering two years with the various mixed protein rations and a mixed protein *versus* a simple protein ration. The substitutions made were fish meal for meat and bone meal, decorticated earthnut meal for extracted soya bean meal.

and dried buttermilk for dried skim milk. There was a significant difference in egg production and hatchability in favour of the mixed protein group over the simple protein group, but not in the other groups. The increased cost of fish meal over meat and bone meal, decorticated earthnut meal over extracted soya bean meal, and dried buttermilk over dried skim milk lowered the gross profits for these pens compared to the control pen getting meat and bone meal, extracted soya bean meal, and dried skim milk in the ration. Another Bulletin deals with a two year comparison of Sussex ground oats and barley meal for fattening table ducklings. There was no difference in the final weight or quality, but the cheaper price of barley meal lowered the cost of the food consumed and therefore gave a slightly larger margin over food cost.

The degree of accuracy with which the annual production of individual birds could be estimated without trapnesting every day throughout the year was investigated and a report published in the *Harper Adams Utility Poultry Journal*. It was found that by trapnesting (1) one day each week or (2) on the four middle days of each lunar month, more accurate estimates of annual production and average egg weight could be made than by trapnesting for the first sixteen weeks of the pullet year.

ANCELLOR EXPERIMENTAL DAIRY FARM

A visit was paid to the Experimental Farm to look over the British Friesian herd which is managed on the intensive system, being fed for high yields according to the Boutflour method.

The pasture of this holding, as well as the cows, is managed intensively on the new rotational method whereby the 21 acres is, this season, enabled to keep 20 large cows, 10 two-years-old, in-calf heifers; 13 yearlings and 11 calves, no artificial feeding being resorted to except the bucketing of the calves and provision of meal to each milk cow for all production over 2½ gallons per day.

Much interesting discussion arose here on the subjects of:—

(*a*) Rations for cows, especially the feeding of dairy cows on grass, and control of the amount of protein fed.
(*b*) The manuring and management of the grass land.
(*c*) Garget in herds.
(*d*) Contagious abortion.
(*e*) Johne's disease.
(*f*) The obscure so-called "Hereford" disease.
(*g*) Poisons and poisoning of cattle.

Disappointment was expressed by the Farm Director that the best animals in the herd could not be seen as they were being exhibited at the Royal Welsh Show on this date, but it was learnt, by wire, during the day, that the exhibition beasts had carried off two championships, one first, one second, and one third prizes.

Since the visit of the Association four young animals from this herd have carried off three firsts, one second, one championship and two reserve championships at the Royal Lancashire Show. The show point is emphasised to demonstrate the fact that no harm to the breeding powers of the herd has ensued from the feeding for maximum yield when scientifically controlled, the young stock as well as the cows being healthy and full of bloom.

PIG FEEDING EXPERIMENTAL STATION

During the course of the afternoon the tour of inspection included a visit to the Experimental Pig Feeding Station, where members had the opportunity of viewing the stock and general lay-out of the plant. Two feeding trials with Large White pigs were seen, one in connection with nitrogenous foods and the other concerning maize. The former, in the main, consisted of a comparison between extracted soya bean meal and separated milk used as protein supplements. Two groups of 15 hogs each were being fed on barley, tapioca and maize meals, sharps and minerals in exactly similar proportions; in one case the protein was supplied in the form of soya meal and in the other as separated milk, as an equivalent amount. A third group were in receipt of the same foods and milk, which formed a higher percentage of the ration to increase the total protein content with the object of approximately conforming to the Swedish protein standard. To date, little or no difference was reported to have occurred between the first two lots, but Lot III, with the larger quantity of milk, were slightly ahead. A further group belonged to this trial, which was in reality another experiment to test the usefulness of dried whey. This Lot IV was receiving the same feeding stuffs with soya meal as Lot I, except that 10 per cent. of the maize meal had been replaced pound for pound by dried whey, which at the time of the visit had not warranted its inclusion.

The other experiment in progress was composed of 30 pigs on a fattening ration of barley, tapioca and soya meals, sharps and minerals; the only difference being that 15 were having 25 per cent. of maize as well as ground meal, and the remaining pigs maize in the cooked and flaked form at the same rate. After a month's feeding no significant discrepancy had presented itself.

The Bearing of the newer knowledge of Nutrition upon Farm Feeding Practice

In the evening the President occupied the chair at a meeting in the library, when Dr. Crowther spoke on the above subject.

Dr. Crowther commenced by outlining the position some thirty years ago as regards the application of nutrition science to practical farm feeding, this being just about the beginning of the modern era of development. What was then taught was that the value of the feeding materials required by the animal was determined by the quantity of the digested energy and digested protein contained in those foods, without any particular reference to the nature of these individual materials, *i.e.*, provided they had the necessary minimum quantities it did not matter very much what were the particular foods given. With regard to mineral matter, they were then taught that the requirements of the animals were so small that in practice they could practically be left to look after themselves, except perhaps in the case of a high-yielding dairy cow, where it might be necessary to give a little bone meal and salt. That was the position roughly when he first began to turn his attention to the subject of animal nutrition, except that doubts were beginning to arise in the case of proteins (albuminoids), as to whether the kind of protein did not need to be taken into account as well as the total quantity. Hitherto proteins had been regarded as mysterious substances, but research was beginning to show that they were essentially combinations of amides and amino-acids, and that these were the forms in which proteins were assimilated from the digestive organs. Some of these amino-acids were essential for growth, and if not present in the make-up of the protein of a particular food, that food by itself could not sustain growth. Experiments showed, for example, that the proteins of maize were not adequate for the production of growth, and that this was because the ingredient tryptophane was missing from the make-up of the amides and amino-acids of the maize protein.

Dr. Crowther proceeded to give, as a simple illustration of the point, the case of the construction of a building which had to be erected with material taken from an old building, and for which a certain number of blue bricks were required. The builder would have no difficulty in getting any amount of ordinary bricks, but he would have to be very careful in selecting from the old building the number of blue bricks required for the new. The blue bricks corresponded to the tryptophane in the maize protein.

Nowadays they were teaching that the quality of the protein was just as important as the quantity and that they must have a full variety of proteins in their rations in order to ensure that they got the right quality as well as the right quantity. With regard to that matter, they had seen two illustrations that afternoon. In the case of the poultry it was demonstrated by Professor Parkhurst that it was necessary to have a considerable variety of protein in the ration. In the case of the pig it was demonstrated that a much smaller range of proteins was apparently adequate, making it possible to cut out of the pig rations the more expensive protein concentrates, such as fish meal. Personally, he thought that the explanation of the apparent discrepancy was to be found largely in the system of management. They were adopting a more natural system of management with the pigs than with the poultry. In the case of the poultry the birds were almost entirely confined to the house. In the case of the pigs they were allowed out daily and received fresh greenstuff, which probably remedied some of the possible defects in the protein of the meal rations fed. He warned them, however, that from the point of view of protein quality there was a risk of having the rations too simple with any class of stock, but the general advice to the farmer was that, provided the ration was reasonably complex, protein quality would not be likely to cause much trouble in practice. The quantity of protein, however, in the ration must obviously be a matter of fundamental importance, since protein of any kind in the body or animal products could only come from protein in the food.

In 1905 or thereabouts came the rather sensational discovery of vitamins. He well remembered the great interest aroused by the pioneer experiments of Hopkins at Cambridge. In those experiments (with rats) rations which, according to the views then held, should have been perfect were used, and yet the experimental animals refused to grow, but when a few drops of milk were added to the ration they grew quite normally. It was not due to the extra protein, minerals or energy supplied by the milk, but to the presence in it of an ingredient required in minute quantities, and hitherto unknown, which came to be called a vitamin (vitamin A). Subsequent research had revealed the existence of other vitamins, which were being simply denominated as they were discovered by the letters of the alphabet (vitamins A, B, C, etc.) until such time as the chemist could find out their exact chemical nature and give them a new name to correspond. The recent vitamin research has tended to show that the earlier discovered vitamins were really mixtures of vitamins, so that, for example, the old vitamin B is now sub-divided into vitamin B_1 and vitamin B_2, and the old C vitamin into C_1, C_2, C_3, etc. The need for vitamins along with the proteins, fats and carbohydrates in the food was now definitely established. Practical experience suggested that different classes of animals varied in their needs for vitamins; for example, birds seemed to be more sensitive to vitamin shortage than pigs. In his own personal experience pigs seemed to have a very low vitamin requirement. Under his own system

of pig management he had not been able to detect any sign of trouble definitely due to shortage of vitamins. He had never found the slightest advantage from the addition of cod-liver oil, and he had come to the conclusion that the vitamin question could be easily made one of very little practical experience so far as pigs were concerned. His conclusions were based upon his own experience, and he would not say that where conditions and the system of management were different they might not come across cases of vitamin deficiency trouble amongst pigs on the farm. Broadly speaking, he would say that the risks of such deficiency were negligible where " natural " methods were followed, and increased with the degree to which such methods were departed from. If the animals had plenty of opportunity of running out in the sun, especially on good grass, he thought that difficulties arising from the absence of vitamins were extremely rare, but if animals were housed and given little or no exposure to the open air and sun, such difficulties might well arise. Under such conditions greater care would be necessary to ensure that all the needs of the animal were met in the food.

In this connection also modern research was beginning to explain some of the virtues of sunlight. Perhaps the most interesting of all the discoveries in connection with vitamins was the discovery of the production of vitamin D in the animal by exposure of the skin to solar radiations, which form the ultra-violet rays. If young animals were kept under conditions which did not allow light to fall directly on them, not through glass, it would certainly be necessary to see that their food was adequately supplied with vitamin D. He thought that exposure to sun and air conferred other benefits besides ultra-violet radiation, and he believed those experiments were only the beginning of more interesting discoveries with regard to the benefits from exposure to sun and air. To sum up the position as regards vitamins, his own belief was that vitamin deficiency would only prove to be of serious practical importance on the farm, where highly " intensive " methods of management were practised, as in much of our modern poultry keeping.

Turning next to minerals, the older experiments, dating back to the middle of the last century, seemed to indicate that there was little risk of trouble arising on the farms from shortage of minerals. To-day, however, shortage of minerals was frequently the cause of very serious troubles on the farm. The explanation of the apparent discrepancy between the old experiments and present-day experience was not far to seek. For one thing, owing to the lapse of the old practice of regular liming and marling, thousands of acres of our grassland had become deficient in lime. Then again, in the days when the old experiments were carried out animals were kept on the farm much longer, and being grown more slowly did not need as liberal supplies of minerals day by day. Nowadays our whole effort was to get our animals into meat as quickly as possible, so that we could not afford to have any shortage of minerals in the daily food supply. Probably large numbers of the livestock that were being fed to-day on farms where the farmer was not alive to this point, were not getting sufficient minerals of one kind or another. Probably in this country it was mostly a deficiency of lime. In some other countries, South Africa, for instance, it was more commonly a deficiency of phosphorus. One came across many cases of young animals suffering from a deficiency of lime. In recent years the interest of the mineral research workers had tended to concentrate on minerals, such as copper, boron and iodine, which, if required at all, were needed in only extremely small quantities. Doubtless this tendency had been stimulated by the concurrent research on vitamins, where very minute quantities also were concerned.

In this line of work most interest had been aroused by the work on iodine, and in this connection he was afraid that practice was being tempted to go too far ahead of research. At any rate, many farmers were using iodine in mineral mixtures for all classes of stock, whereas from a wide survey of the experimental work on the subject he could find no conclusive evidence of benefit, either in growth or fertility, following from the use of iodine, except with animals showing the specific symptoms of iodine deficiency. He was aware of the great improvements effected by administering iodine, as such or as iodide, in cases where the thyroid gland was definitely deficient in iodine, but it was a very different thing to expect results from healthy stock.

With regard to cows, pigs and poultry at the College they could not find the slightest sign of iodine deficiency. They had tried them with iodine and without, and were quite unable to detect any difference. He would not say, however, that there might not be other cases in which iodine would prove useful. All their iodine came out of the sea, the spray carried inland being washed down into the soil, and therefore the further they got from the sea the less iodine might they expect to find in the natural vegetation, and consequently the greater the chance of iodine deficiencies. At present, however, the agricultural adviser was entirely in the dark both as to the amount of iodine required by animals and the amount present in foodstuffs and the extent to which it might vary in different parts of the country. It seemed to him, therefore, premature for the farmer to be spending money on iodine, except

where he was definitely advised that his stock showed signs of thyroid trouble.

On the general question of mineral deficiencies in practice, both with pigs and poultry, they had been able to reduce their mineral mixtures to the simple terms of lime and salt. In many quarters bone meal was also used, but this could only be justified if there was a deficiency of phosphorus. Experiments had shown that the cereal foods which enter so largely into the feeding of pigs and poultry supply them adequately with phosphorus. Bone meal was too expensive to use simply as a source of lime. Experiments in Northern Ireland and in the Irish Free State had confirmed their own conclusions that the only mineral supplements required with the cereals were lime and salt. In their pig rations at the College if they were not using some ingredient like fish meal or meat meal, which contained a good deal of bone, they added 1½ per cent. of finely ground limestone and ½ per cent. of salt to the mixed meals. He had come across cases of pigs suffering from want of iron, but these were very exceptional in his experience. Assuming that the system of management did not lead directly to a mineral shortage, it had yet to be demonstrated that mineral requirements were likely to produce a radical change in our farming methods. So long as the bulk of our farming ran on the lines on which it had run in recent years and was running on to-day, his experience was that the newer knowledge, though extremely interesting, did not require any very great change in our present methods. It simply needed more care and intelligence in its application than was formerly required.

He had not touched at all upon the energy value of food. Thirty years ago they simply took the energy value of food at its face value, and it was only after the work of Kellner in Germany, and Armsby in America had been completed that they were able to discriminate between that part of the food energy which could only function as heat, and that which could be applied to productive purposes. With this improved knowledge the reliability and value of advisory work on livestock rations had very greatly increased. In drawing up rations it was now possible to assess separately the requirements for maintenance and for production, and thereby adjust the feeding closely to the needs of the animal. There were still many directions in which they were very ignorant. They were still too apt to judge foods and rations simply in terms of percentages of digestible ingredients, and to ignore other points such as rate and ease of digestion, palatability, etc., which practical experience proved to be important. The position was extremely unsatisfactory, particularly with regard to their knowledge of the factors controlling the ease and the rate of digestion, and from work in that direction he personally would look for valuable progress in the scientific control of the feeding of farm animals.

Summing up, he would again express the opinion that although these recent advances in nutrition science were extremely interesting they did not necessitate any fundamental changes in the standard well-tried systems of feeding their livestock, but if, like the poultry-keepers, they were obliged or chose to go in for highly intensive systems of management, requiring what might roughly be called "unnatural" methods, then the newer nutrition knowledge would certainly acquire a definite practical importance. (Applause.)

DISCUSSION

Mr. Downham asked, with regard to the salt deficiency of cereals, whether it was the sodium or the chloride that was deficient.

Dr. Crowther replied that, contrary to the general impression, which he had shared, that it was a chloride deficiency, recent experiments seemed to indicate that it was the sodium rather than the chloride which was deficient. He went on to mention the risk of salt-poisoning with pigs. Pigs were sensitive to excess of salt, but a little salt they must have, and this small amount was not supplied by a diet of cereal foods.

Professor Gaiger raised the question of cases where pigs were suffering from not having sufficient sun and light, indicating vitamin deficiency.

Dr. Crowther said that he was inclined to attribute the good health of the pigs at the College partly to the regular daily exposure to fresh air and sun, and also to the small allowance of greenstuffs that he gave them. The vitamins were probably not present in adequate amounts in the meals that were most commonly used; but, whatever the explanation, they had never been able to detect any vitamin shortage in their experiments. This he would confidently assert as regards "A" and "D." He was not sure whether there might or might not be a slight deficiency of vitamin "B." This might perhaps account partly for the roughness of coat of some of the pigs seen that afternoon.

Mr. Downham remarked that the cases of deficiency of iron might possibly be linked up with worm infestations.

The President referred to many cases that had come to his notice of fat pigs with extremely brittle bones.

Dr. Crowther expressed the opinion that this was probably due to deficiency of lime. He would explain the fact that there was no malformation of the limbs by the fact that the pigs had been reared properly, and that afterwards they had been put to feed on a very deficient ration.

Vote of Thanks.—The President proposed a vote of thanks to Dr. Crowther for the able address which he had given them, also for the magnificent entertainment which they had had that day. He referred to the interesting things which they had seen in the Poultry Institute, in the farmyard, in the dairy and amongst the pigs. He had enjoyed himself immensely, and the only defect, to his mind, was that the time had been too short to allow them to appreciate all that they had seen there.

Professor Gaiger, seconding, said he had been to a good many meetings of the Association during the past few years, and he was quite sure that he had not been to a more interesting gathering. They sometimes heard their own members talking too much about their own subject, and it had been a nice change to hear someone else talking. He knew the trouble that must have been imposed upon Dr. Crowther and his assistants in preparing for such a visit. They could never know how a thing was going to "go." That day it had "gone," and it had all been most interesting. The only thing was that the weather had been a little unkind to them, but he thought that had been counteracted by the warmth of the welcome that they had. (Applause.)

Dr. Crowther said he could only repeat what he said earlier, that it had been a very real privilege to have a visit from their Association. If they had been interested, they at the College were amply repaid for any little trouble to which they might have been put. In saying that, he knew he was voicing the feelings of his colleagues, Mr. Downham, Mr. Thompson and Professor Parkhurst. He only hoped that they would have the privilege of another visit from them and that this was only the first of many such meetings at the College. (Applause.)

VISIT TO THE VETERINARY RESEARCH LABORATORY

The party subsequently viewed an exhibit staged by the College Veterinary Adviser, Mr. Downham, in the veterinary research laboratory.

The exhibit showed the various diseased conditions in poultry. Mr. Downham also gave a demonstration upon the method of conducting a *post-mortem* examination upon a fowl. A short discussion followed upon some prevalent poultry diseases and methods of diagnosis. A number of microscopical preparations and photographs of pathological specimens were on view and stimulated an interesting discussion.

Recent literature on poultry diseases was available for those members desiring it and a large number of these publications were accepted.

A. L. Mullen, *Hon. Secretary.*

NORTH OF SCOTLAND DIVISION*

MEETING AT ABERDEEN

The half-yearly meeting of the Division was held in Marischal College, Aberdeen, on Saturday, September 3rd, 1932. At the beginning of the meeting, the retiring President, Mr. A. Sievwright, was in the chair. He introduced the newly-elected President, Mr. J. Lyon, Banff, who briefly returned thanks for the honour conferred upon him in being elected President of the Division.

The following were also present: Messrs. D. Cumming, W. Anderson, D. Crabb, G. Howie, D. Clerk, J. Grant, A. Niven, H. McVean, R. E. Drennan, W. J. B. Robson, W. Grant, W. J. Rice and J. McAllan, Hon. Secretary.

The members were pleased to have as visitors Messrs. Addison, Mair, Angus and Bell.

The President referred sympathetically to the death of Mr. J. C. Mitchell, Alford, and the members paid their respect to his memory by standing in silence.

The minutes of last meeting were taken as read, as they appeared in the *Veterinary Record*, and were approved.

Mr. George Howie, F.R.C.V.S., was elected Secretary of the Division in place of Mr. J. McAllan, who is leaving for Northern Ireland. The President expressed the regret of the members at Mr. McAllan's pending departure, but also offered his congratulations on his new appointment and wished him every possible success.

The members then adjourned to the Zoological Department of the University, where Dr. D. Robertson, Lecturer in Agricultural Zoology, North of Scotland College of Agriculture, gave a most instructive and interesting demonstration on stomach and intestinal worms of sheep. Dr. Robertson demonstrated the correct methods of *post-mortem* examination for the finding of these worms and, in addition, had a very interesting display of the different worms found in the stomach and intestines of sheep. The lecturer dealt also with the economic importance of these worms and possible preventive measures in their spread. He dealt most fully with the whole subject and expressed the wish to be of every possible assistance to any of the members who may at any time care to consult him with regard to parasitic diseases.

On the call of the President, supported by the Secretary, Dr. Robertson was most heartily thanked for his kindness and for the trouble that he had expended in arranging the demonstration for the Division.

The arranging for the business of the next meeting was left in the hands of the Secretary.

J. McAllan, *Hon. Secretary.*

* Received for publication September 14th.

BOVINE AND HUMAN TUBERCULOSIS IN JAPAN

Mr. William S. Stevens, M.R.C.V.S., contributed to the *British Medical Journal* of September 17th, a letter in which he quoted further evidence in support of his contention, made earlier in the year, that Dr. Camac Wilkinson was incorrect in regard to the first part of his statement in the *Journal* of January 30th, that: "It is a known fact that . . . there is little or no tuberculosis in cattle of Japanese breed. These cattle are *naturally immune*. . . . Surely we ought not to hear anything more of the conversion of tubercle bacilli of the bovine strain into tubercle bacilli of the human strain in the human body."

Mr. Stevens said:—"I have now received from Japan, through the good offices of Dr. P. Ohshima, Director of the Sanitary Bureau, Tokio, the following information and tables, which will probably be of some interest. First, an excerpt from the report of Dr. Seisuke Matsuzawa of the Hokkaido Imperial University Faculty of Medicine, Tokio. He writes:—

> 'I made a study of 104 tuberculous in-patients of all ages of this department as to the infection by bovine tubercle bacilli. The diagnosis was either morphologically, by cultivation, or by animal experiment, and as a result I found four cases of bovine bacillus infection—3·8 per cent.'

"Unfortunately Dr. Matsuzawa does not state what percentage of the 104 patients were children, but he gives the following table of some of his test results:—

Ages:	0-5		6-10		11-16		Adult		Total		Ratio of bovine
Parts Affected.	H	B	H	B	H	B	H	B	H	B	tuber.
Lymphatic gland	—	—	1	1	1	0	9	1	11	2	15.3
Bones and joints	3	0	1	0	5	1	30	1	39	2	4.8
Genito-urinary organs ...	—	—	—	—	1	0	17	0	18	0	0
Other surgical tuberculosis	1	—	—	—	—	—	4	0	5	0	0
Pulmonary tuberculosis ...	—	—	—	—	3	0	24	0	27	0	0

H—human tuberculosis; B—bovine tuberculosis.

> It should be noted that there were no cases of bovine tuberculosis in children up to five years old. The probable explanation is that most Japanese babies are breast-fed.

"The following figures are the results of *post-mortem* inspection over three years of *milch* cows slaughtered (presumably for food) in Japan: Cows with mild tuberculosis, 1925, 87·91 per cent.; 1926, 88·78 per cent.; 1927, 89·75 per cent. I was furnished with further figures, but I think those already mentioned are sufficient to explode any so-called fact 'that there is little or no tuberculosis in cattle of Japanese breed.' At the same time, I do not suggest that these findings by themselves prove or disprove the mutation of the bovine and human strains of the tubercle bacillus."

. . . . .

Replying to the above, in the following issue, Dr. Wilkinson says that the fresh evidence from Japan clearly shows that in that country bovine tubercle bacilli do not play a great part in human tuberculosis—3·8 per cent. Moreover, cattle of the *Japanese breed* do not suffer from bovine tuberculosis: nowadays there are cows of mixed breed in Japan.

From *The Veterinarian*

October, 1832.

THE NEW MEDICAL YEAR

The present month, by the medical world in general, by the schools more especially, is regarded as the first of a new medical year: and it is a season well suited for the commencement of medical studies. The summer's heats begin now to give place to the cooling breezes of autumn; our enemies, the flies, to relax their importunities, as well as diminish in their numbers; and the weather and temperature to become such as to incline our mental powers better than one could probably have done in any intervening month between the cessation and recommencement of medical term-time. Why our veterinary class of students should not assemble at the same time that the medical classes do in the metropolis, is to us inexplicable: we can assign very potent reasons why they should do so, and such as seem to us of weight enough to bear down every counter-consideration.

The students at our College are enjoined to attend the "lectures in town"— which commence within the month. Whereas, woeful to add! the lectures at the Royal Veterinary College do not have their beginning before the second or even third week of *November;* before which protracted day the pupils in general not arriving, the consequence is that almost one-half of the first course is passed over and lost to them. This is a sad misfortune to a young man intending to pass only one year at College—nay, may turn out to be an irretrievable one, should it happen (as it generally does) that only a half or even a third of the class can attend the same course of the term lectures, the numbers being too great to find room for all upon the eleemosynary benches.

Among other disadvantages the veterinary student labours under, this is one that can be removed without any great sacrifice on the part of the Professors; and it is one that ought at once to be rectified.

(To be continued.)

WET *VERSUS* DRY MILKING

"Tests carried out by Miss K. Boyes and Mr. J. McClemont, summarised in the *Farmer and Stockbreeder*, should clear up—at least as far as the technical aspect is concerned—the long-drawn-out controversy of wet *versus* dry milking," says that paper. "'There yet remains the vexed question of the comparative speed of the two methods. Therefore those who care to dismiss hygienic considerations can still indulge in a controversy on which opinions have long been divided.

"The tests show conclusively the advantages of dry-handed milking over wet and greasy methods. In thirty samples drawn with clean, dry hands there was a total absence of bacillus coli; the bacteriological count was appreciably lower; and more favourable results were secured in the sediment tests."

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That the Isle of Man is quickly becoming stocked to saturation point with sheep is shown in the Manx Government return of farm stock. There are 101,995 sheep in the island, an increase of 10,842 on the previous year. Horses at 3,564, showed an increase of 147, and cattle increased by 692 to 20,169. Pigs increased by 207 to 4,379, and poultry by 13,914 to 171,430.

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

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DIARY OF EVENTS

Oct. 17th.—Meeting of the Editorial Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, W.C.1, at 4.30 p.m.

Oct. 19th.—Meeting of the Western Counties Division, N.V.M.A., at Exeter.

Oct. 19th.—Meeting of the Scottish Metropolitan Division, N.V.M.A., at Edinburgh.

Oct. 21st.—Meeting of the Mid-West and South Wales Division, N.V.M.A., at Cardiff.

Oct. 25th.—Meeting of the Derbyshire Division, N.V.M.A., at Derby.

Oct. 26th.—Section of Comparative Medicine of the Royal Society of Medicine: Opening Meeting of the 1932-1933 Session, 1, Wimpole Street, W.1.

Oct. 28th.—Meeting of the Yorkshire Division, N.V.M.A., at Leeds.

Nov. 1st.—All changes of address for insertion in the 1933 Register to be reported to the Registrar, R.C.V.S.

Nov. 4th.—R.A.V.C. Old Comrades Association Twelfth Annual Re-Union Dinner, Anderton's Hotel, Fleet Street, E.C.4.

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THE HORSEWOMAN WINS

It would be ungallant to deduce deterioration of horsemanship in the modern male veterinary student from the remarkable fact that representatives of the fair sex "swept the board" of awards in the riding competition recently revived at the Royal Veterinary College. We will therefore endeavour to content ourselves (though not all our readers, we fear, will be reconciled thus easily to so revolutionary a situation) with describing it as a sign of the times that, as a result of this summer's performances at the riding school, the first, second and third prizes were taken by lady students in open competition with men, the "field" numbering twenty-six. We cannot resist the observation, however, that it will be as encouraging to the triumphant "undergraduette" to have our assurance that the day of the horse is by no means done, as it will be to her masculine rival in the saddle to know that canine practice offers a lucrative loophole.

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PERSONAL

Wills.—Robb, Major Andrew, M.R.C.V.S., late Royal Army Veterinary Corps, of Bearsden, Dumbartonshire, veterinary surgeon (personal estate in Great Britain £13,019), total £13,055.

Tayler, Mr. Rowland Charles, M.R.C.V.S., Colchester (net personalty £4,636), £6,428.

Young, Mr. Harry Ashley, M.R.C.V.S., of Dunmow (net personalty £2,183), £7,968.

"Dr. Albert Hassall, a native of Kent, and holder of the Steele Medal award of the Royal College of Veterinary Surgeons, is giving his services to the American Government," says a Reuter message from Washington, published in the *Evening Standard*.

"Dr. Hassall, who has worked with the United States Department of Agriculture for 45 years, has reached the retiring age of 70. However, he still goes twice a week from his home in Maryland to his old laboratory, 20 miles away, where he has acted as assistant chief of the Zoological Division of the Bureau of Animal Industry.

"He graduated from the London Veterinary College in 1886 and went to America the following year."

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R.C.V.S. OBITUARY

Watchorn, Frederick William, "Cartref," Great Glenn, Leicester. Graduated London, March 23rd, 1887; Fellowship, April 28th, 1892. Died October 1st, 1932, aged 69 years.

The late Mr. Watchorn was in practice at Newtown, Montgomeryshire, from 1890 to January, 1926, when he retired to Great Glenn, Leicester.

Whitfield, Francis Sanderson, 3, Claremont Terrace, Sunderland, Captain R.A.V.C. (T.A.). Graduated Edinburgh, December 18th, 1923. Died September 29th, 1932, aged 32 years.

Captain Whitfield was the eldest son of Mr. Robert Whitfield, of Red House, Durham, a farmer. He gained his degree at Edinburgh University and took over an old-established practice in 1925.

In the war, Mr. Whitfield was in the Flying Corps, and was also a keen motorist, winning several trophies for long-distance motor-cycle races.

At one time he held an appointment under the Board of Agriculture.

He leaves a widow and two young sons.

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ARMY VETERINARY SERVICE

Movement of Officers

Major C. W. Heane is at present in this country on leave from India.

Captain L. R. Swifte sailed for India on September 17th for a full tour of duty abroad. He did duty *en route* on board a freightship conveying remounts to Egypt.

Major G. W. Godwin, who is still on sick leave, was reverted to the British establishment on September 27th.

Major J. J. Clune was posted from the Northern to the Eastern Command for duty on October 4th, and is now doing duty at Colchester.

Major K. S. Simpson was posted from the Southern to the Northern Command for duty on October 4th, and is now doing duty at Catterick.

Major J. Robertson and Captain E. O'Kelly sailed for India on October 11th, for a full tour of duty abroad.

Major G. E. Oxspring is at present in the King Edward VII Hospital, 17, Grosvenor Crescent, London, S.W., where he is undergoing an operation.

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LIVERPOOL B.V.Sc. EXAMINATIONS

The following is the University of Liverpool, School of Veterinary Science, Examination List for September, 1932, in connection with the University Degree of B.V.Sc.:—

First Examination, *Part I.*—Massey, Kathleen M.; Needham, A. J. E.

HORSE BREEDING ITEMS

Some anxiety has been shown by several county agricultural committees, especially in the west, concerning the future of the light-horse breeding grants. In December the National Light-horse Breeding Society, by exercising pressure on the War Office, secured the grant of £8,000 for the purpose of premiums for stallions, whereas it had at first been intended that the grants should be entirely discontinued owing to the need for national economy.

The Society was thus enabled to allot 75 premiums of £100 each, the remaining £500 being utilised for working expenses. Every effort is to be made to obtain the renewal of the grant, and the members of a deputation from the Society are awaiting the suggestion from the Secretary for War of a date on which he would be prepared to see them. The deputation will be composed of Major Gordon B. Foster, Sir Walter Gilbey, the Hon. Alexander Parker, and Lord Dalkeith.

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"Sales of Clydesdales—young and old—indicate that there is a real solid demand for the right type for farm use, and the profitable prices are not grudged by those on the look out for them," says the *North British Agriculturist*. "Elgin show and sale has been a success; Perth brought in a much higher average for all classes compared with the corresponding sales last year. The outlook is very promising to those who mate good mares with the best class of stallions. Colts and fillies are wanted; everything points to greater areas of land being cultivated.

"Motor traction is the horse's greatest rival, but it is not to put them off farms even though it has managed to put them pretty well off the roads. The increased price of petrol helps the value of the horse. Both colts and filly foals have left profit and geldings of size and substance are short of requirements. In years gone by the North-East was the great nursery of the Clydesdale breed. Many who have given up horse-breeding are loth to restart it. But times demand that farmers must jump out of the rut and adapt themselves to the prevailing requirements."

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

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INTUSSUSCEPTION IN BOVINES

To the Editor of the Veterinary Record.

Sir,—All general practitioners will be grateful to Mr. F. T. Harvey for reporting his experiences on this important disease. He says: "Many cattle die every year in this country from acute intestinal obstruction which might receive surgical relief." I agree with him, but the difficulty is the making of a correct diagnosis. It is rather annoying to proceed with a serious operation such as he describes and have nothing to show for it, although I understand it is a well-known fact in human surgery that an exploratory laparotomy in many cases does a great deal of good in curing abdominal troubles.

Mr. Harvey puts the age of one to two years as the commonest time to find intestinal obstructions. I would say six months to a year is the worst age for all gastro-intestinal derangements and especially in the badly nourished bucket-fed calves.

The symptoms Mr. Harvey gives—of acute pain to start with, moving backwards, stretching out, elevated tail and down in the loins, are all I would consider typical of gravel or urinary calculi. Perhaps Mr. Harvey depends more on his examination per rectum for locating the intussusception. Gravel amongst feeding bullocks has become much more common of late years. I blame the use of so much beet pulp in the feeding, although analysts tell us that all the sugar has been extracted from the stuff. Treatment is hopeless in almost every case. I advise slaughter on the appearance of the first symptom, as a delay of even a day or two finds the carcass badly impregnated with urine.

Mr. Harvey doubts whether recovery can take place late by sloughing. I am of the opinion that it can and think I have seen a cast of the bowel voided per rectum after a long illness that had been treated for obstruction.

I make many *post-mortem* examinations in cases in which I then wish I had tried an operation early. Certainly Mr. Harvey's experience will tend to make me less timid in exploring an animal's abdomen.

W. A. Campbell.

Boroughbridge,
Yorks.
October 8th, 1932.

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ANIMAL PSYCHOLOGY

To the Editor of the Veterinary Record.

Sir,—The interest which has recently been aroused in animal psychology by Mr. Rex Knight's address before the Psychological Section of the British Association for the Advancement of Science, provides an opportunity of bringing this subject before our notice as a body of scientific people who study animals in health and disease.

It is rather remarkable that our veterinary training, while entering into considerable detail in the anatomical and physiological mechanisms of animal behaviour, should entirely ignore the mechanism of animal behaviour concerned with certain functions of the brain which are in part or wholly responsible for some kinds of animal action. A knowledge of the working of this mechanism which may be called "consciousness" or the "animal mind," is as important for a complete understanding of animal behaviour as is a knowledge of the functions of various organs and tissues.

Some of the more matter of fact of our number appear to regard the word "Psychology" with suspicion; the subject need, however, no longer be looked at with mistrust as the study of this branch of animal behaviour is now as cold and uncoloured a scientific pursuit as any other, being based on properly controlled experiments. The everyday observation of animal actions, and their explanation by the mental processes which most readily present themselves to us is unsound and leads to erroneous views on their mental powers; although we are continually in contact with animals in health and disease we cannot claim to be better informed on the workings of the animal mind than the farmer, the dog fancier, or the poultry keeper, unless we have instructed ourselves in the subject, and acquired what knowledge is available. The literature on animal psychology is now very extensive; text books have been written about it, and technical journals are devoted to the publication of new work. Those

who have made even a superficial study of this literature will, in a large measure, support Mr. Rex Knight's views; they will have a truer notion of the nature of animal intellect and be guarded against offering human reasons in explanation of animal actions. It is most desirable that as professional men we should have a little more knowledge of this important branch of the animal organism than the man in the street, and much may be said in favour of including at least some notice of the subject in the veterinary curriculum.

Yours faithfully,
E. L. Taylor.

Albury,
Near Guildford.

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THE SPEED OF GREYHOUNDS

To the Editor of the Veterinary Record.

Sir,—A great deal has been written recently in the lay Press concerning the speed of greyhounds and racehorses. One expert writer on "greycing" gave the speed of greyhounds over the Greyhound Derby Course as 17¼ yards per second and the speed of horses on the Epsom Course 17¾ yards per second. Records show the 2,000 guineas and the 1,000 are run at faster time than the Derby, showing 17·95 yards per second. Mr. R. S. Eckersley, writing in the *Evening Standard*, stated that "Beef Cutlet must have travelled at one stretch of his recent race at nearly 40 miles per hour." (Actually, 17¼ yards per second is 35·29 miles per hour.)

Unfortunately these records of greyhound speed have not taken into consideration the fact that greyhounds are sadly curbed in their endeavours by having to negotiate nasty curves and bends on any London track, but give them a chance on a straight sprint and the pace will be found to be 19 yards per second, which is 38·86 miles per hour. In point of fact, on the 315 yards straight, the 288 yards racing distance has been covered in 15 seconds, which has never been equalled on any London track.

It may interest others, as it has the writer, that the times for the various sections average out as follows: first 50 yards, 13 yards per second; next 100 yards, 21 yards per second; 150 yard mark to the 250 yard mark, 19·5 yards per second; and the last 38 yards, at 18·5 yards per second.

From this it is seen that the greyhound reaches the peak of his speed on the 100 yards following the first 50, when he covers the ground at the rate of 42·9 miles per hour, a really wonderful speed and most thrilling spectacle.

Mode of Timing

Yards.

50	150	250	288
3·72	4·78	5·35	2·15

Total = 16 secs.

Secs.

Five watches were tested, certified and synchronised, the timekeeper in the judge's box having two watches (in case of accident). Each timekeeper starts his watch at the rise of the trap and stops at the end of his own particular stretch. In the case of the 15 second record the human element failed at two of the stretches, but the total of the timekeeper was corroborated by the judge. In the case of the 15·20, 15·40, 15·65 second times there were slight variations of one and up to three-hundredths of a second.

I feel that if we, as veterinary surgeons, who have to know all about greyhounds, keep in mind the 16 second, 288 yard sprint time and its sectional times we will be very near the mark.

Yours truly,
J. Bell, f.r.c.v.s.

September 20th, 1932.

The Editor acknowledges the receipt of the following:—

Communications from Mr. W. P. Blount (Goring), Dr. W. M. Campbell (Chicago), Mr. T. J. Richardson (Beckenham), and Dr. A. Leslie Sheather (Chorley Wood).

Diseases of Animals Acts, 1894 to 1927

SUMMARY OF RETURNS

Period.	Anthrax.		Foot-and-Mouth Disease.		Parasitic Mange.		Sheep Scab.	Swine Fever.	
	Outbreaks confirmed.	Animals attacked	Outbreaks confirmed.	Animals slaughtered as diseased or exposed to infection.	Outbreaks reported by the Local Authorities.	Animals attacked	Outbreaks confirmed.	Outbreaks confirmed.	Swine slaughtered.
Period 16th to 30th September, 1932	No. 10	No. 15	No. 1	No. 88	No. 3	No. 3	No. 2	No. 45	No. 13
Corresponding period in 1931	15	15	2	176	3	3	3	83	36
1930	9	10	2	140	6	9	4	75	45
1929	11	11	1	46	8	9	1	165	95
Total 1st January to 30th September, 1932 ...	263	326	10	940	103	163	170	1,295	629
Corresponding period in 1931	368	412	96	10,483	117	213	214	1,467	617
1930	282	311	7	299	177	269	294	1,850	799
1929	333	415	27	2,685	171	338	374	1,790	1,056